Derivation of Quarterly GDP, Investment Spending, and Government Expenditure Figures from Annual Data: The Case of Pakistan

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Abstract

In this paper we convert annual GDP, investment spending, and government expenditure data into quarterly figures for Pakistan using observed annual time-series data for the period 1971-2010. Three different econometric disaggregation techniques, namely the Denton (1970) approach, the Chow-Lin (1971) framework, and the cubic spline interpolation method, are used for quarterisation. We use quarterly consumer price index (CPI) and industrial production index (IPI) as the indicator variables while disaggregating annual frequency data into quarterly frequency data. The time series properties of estimated quarterly series are examined using different unit root tests. Correlation estimates indicate that interpolated quarterly series using all three methods are highly correlated. Time series plots illustrate that while the series quartered using the Denton approach and the Chow-Lin procedure exhibit similar trends. However, the quarterisation based on the farmer approach is more variable as compared to that based on the later approach. The data set is given in the appendix and the estimation codes for all three methods are available from the authors.

Keywords: Quarterly GDP; Quarterly investment; Quarterly government expenditures; Disaggregation methods, Quarterisation; Quarterly Data; Pakistan; the Denton approach; the Chow-Lin framework; the Cubic Spline interpolation process

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1. Introduction

Like several other developing countries, data on national income accounts of Pakistan are officially only available at annual frequency. Higher frequency data on macroeconomic indicators, such as GDP, aggregate investment spending, and government expenditures, however, are often required for econometric modelling and for an effective forecasting. In doing forecasting researches largely use subjective methods rather than the objective ones because of the availability of limited annual observations. Further, the use of annual GDP figures with higher frequency financial time-series data also deteriorates the soundness of financial modelling. Non-availability of a high frequency data on national accounts is one of the big hurdles faced by the researchers working with time-series data. To cope this issue researchers suggest different econometric methods in order to convert low-frequency economic time-series data into high-frequency data.

The main objective of this study is to estimate quarterly data of GDP, investment spending, and government expenditures for Pakistan over the period 1971Q1-2010Q4. Specifically, we quaterise the real GDP (at constant prices of 1960, 1981, and 2000), nominal GDP (at current prices), total investment, public investment, private investment, total government spending, current expenditures, and development expenditures using three different econometric methods of disaggregation.[1] These methods are the Denton (1970) approach, the Chow-Lin (1971) procedure, and the cubic spline interpolation process. The first two methods use related series as indicators in order to convert low-frequency data into high-frequency data, whereas the latter one is based on univariate framework. We therefore use two quarterly indicators, namely consumer price index (CPI) and industrial production index (IPI) in our estimation.[2]We present time series plots of quartered data and correlation estimates to examine whether different econometric techniques for disaggregating time-series data provide similar higher frequency estimates. Further, we apply unit root tests to examine the time-series properties of derived quarterly series. The generated quarterly data would be useful for empirical analysis of the dynamics of macroeconomic variables across the business phases. It would also help improve the efficiently of forecasting of macroeconomic indicators. The derived higher frequency series would also be worthwhile in financial modelling as it is quite common these days to examine the impact of macroeconomic conditions on stock prices/returns and volatility of financial markets.

The results from the KPSS (Kwiatkowski et al., 1992) unit root tests indicate that all the series of interest as well as the related-indicator variables are integrated of order one. The results from cointergation tests provide significant evidence of the existence of the long-run equilibrium relationship between the underlying series of interest and the indicator variable. Further, we find that the evidence of the existence of the long-run relationship holds true for both related-indicator variables. This implies that the residues of the regression of the variable of interest on the indicators are stationary at their levels.

The estimated correlation coefficients provide evidence that the generated quarterly series

[1]In this paper we use the terms "disaggregation" and "interpolation" interchangeably.
[2]The interpolated quarterly data set is given in the appendix and the estimation codes for all three methods are available from the corresponding author at abdulrashid@iiu.edu.pk.

based different disaggregation methods are highly correlated. Higher and significant correction between the quartered series suggests that in spite of having different statistical properties, the econometric techniques we implement here provide quite similar quarterly estimates of GDP, investment spending, and government expenditures. Time series plots illustrate that the series quartered using the Denton approach and the Chow-Lin framework exhibit similar trends. However, the quarterisation based on the farmer approach is more variable as compared to that based on the later approach. We also present summary statistics of observed annual series and interpolated quarterly figures.

We are not the first to present quarterly estimates of GDP for Pakistan. Several studies in the past, such as Bengaliwala (1995),Kemal and Arby (2008), Arby (2005), Hanif et al. (2013) have been converted annual GDP of Pakistan to quarterly series.[3] However, one should note that our study considerably departs from these studies on several aspects. First, we generated quarterly data for the period 1971-2010. Second, we quarterise not only GDP (at constant prices of 1960, 1981, 2000, and current prices) but also derived quarterly estimates of total investment, public investment, private investment, total government spending, government current spending, government development spending measured at current prices. Most of prior studies have focused disaggregate only real GDP and GNP with an exception of Hanif et al (2013), who also generated quarterly data on other macroeconomic variables, such as private consumption, investment, and government expenditures.

Third, while interpolating the series we use two different quarterly indicators, namely CPI (2005 =100) and IPI (2005 = 100). The literature provides evidence that the 'related-indicators' frameworks generally have tendency to produce far superior disaggregation of annual data (). Fourth, we utilize three different econometric techniques of disaggregation to derive quarterly estimates of the underlying macroeconomic variables. These techniques are commonly used in the literature. The use of more than one method allows us to make an interesting comparison. Further, these methods are relatively easy to understand and implement. Further, these methods are readily available in well-known computer packages. Thus, they can easily be used to derive updated quarterly estimates of the underlying variables. Rather, the processes used by prior studies are quite complicated, laborious, and may only suitable in case of GDP/GNP.

Finally, we examine the time-series properties of the obtained quarterly series. In sum, we deem that the derived quarterly figures of GDP, investment spending, and government expenditures that we present in this paper are robust, consistent, reliable, and efficient compared to estimates obtained either through less sophisticated econometric approaches of univariate interpolation or relatively complicated processes of disaggregation.

The rest of the paper is structured as follows. Next section describes econometric methods we use for quartering annual time series. This section also describes data. Section 3 presents the derived quarterly estimates. Section 4 concludes the paper.

2. Econometric Methods

Reviewing the existing literature we find two main strands of time-series econometric techniques for disaggregating observed low-frequency time-series data into higher-frequency

[3]Arby and Batool (2007) have also attempted to derive the quarterly estimates of overall gross fixed capital formulation for Pakistan.

data. Studies included in the first strand derive disaggregated estimates at higher frequency of a series observed at low frequency using observed high frequency predictors/indicators (for example, see Fernandez (1981), Litterman (1983), Harvey and Pierse (1984), and Guerrero (1990)). Whereas the second genre includes those studies that interpolate a time series based on univariate methods (for instance, see Chan (1993)). In this paper we use three different methods to derive quarterly estimates from annual GDP, investment spending, and government expenditures data. These methods are the Denton (1970) approach, the Chow-Lin (1971) procedures, and the cubic spline interpolation process. Since the first two methods use the higher frequency indicators related to the underlying series, we utilize consumer price index (CPI) and industrial production index (IPI) as observed quarterly indicators in our exercise. In what follows below we provide a brief review of these methods.

2.1 Chow-Lin Procedure

The basic idea of the seminal work of Chow and Lin (1971) was to develop a static multivariate regression based procedure for temporal disaggregation. Specifically, the Chow-Lin (1971) method identifies a linear relationship between quarterly observations of a variable and a related monthly series. Afterward, several studied including Fernandez (1981), Litterman (1983), Harvey and Pierse (1984), and Guerrero (1990) have attempted to mitigate the extent of the hindrances related to the Chow-Lin procedure.[4] These studies also present the Chow-Lin method to derive monthly data from quarterly observed observations. However, one can easily adopt the procedure to derive quarterly estimates from observed annual figures.

Assume that annual data on the times series of interest(say y^a) are available for T years. Lety^q be a $(4n \times 1)$ vector of quarterly observations of the underlying series to be estimated. Let X^q be a $(4T \times m)$ matrix of m quarterly observed variables, which are related to y^a. Using quarterly data the regression of annual aggregates can be fined as follows:

$$Cy^q = y^a = CX^q\beta + C\varepsilon^q = X^a\beta^a + \varepsilon^a \qquad (1)$$

where$C$ is a $(T \times 4T)$ converter matrix. Specifically, this matrix converts $4T$ quarterly observations into T annual figures and is defined as follows:

$$C = \begin{bmatrix} 1 & 11 & 10 & 00 & 0\cdots & 0 & 0\,0 & 0 \\ 0 & 00 & 01 & 11 & 1\cdots & \vdots & \vdots\,\vdots & \vdots \\ 0 & 00 & 0. & .. & \cdots & 1 & 1\,1 & 1 \end{bmatrix} \qquad (2)$$

In equation (1) ε^a is a $(4T \times 1)$stochastic vector with zero mean and a $(4T \times 4T)$ covariance matric, Ω^q. In order to implement the Chow-Lin (1971) procedure ε^a can be obtained as $\hat{\varepsilon}^a = y^a - X^a\hat{\beta}^a_{GLS}$ where $\hat{\beta}^a_{GLS} = (\acute{X}^a C\Omega^q \acute{C} X^a)^{-1}(\acute{X}^a C\Omega^q \acute{C} y^a)^{-1}$. After obtaining the residuals the quarterly estimates of the series can be obtained as follows:

$$\hat{y}^q = X^q\hat{\beta}^a_{GLS} + \Omega^q\acute{C}(C\Omega^q\acute{C})^{-1}\hat{\varepsilon}^a \qquad (3)$$

[4]Friedman (1962),Lisman and Sandee (1964), and Boot et al. (1969) are among earlier studies that have suggested the econometric methods for deriving quarterly figures from annual data.

In equation (3) the first term of the right-hand side gives the predicted quarterly y^q, whereas the second term distributes annual residuals $\hat{\varepsilon}^a$among the four quarters of the year in a way that the annual sum of the derived quarterly estimates of y^q equal to the value of y^a observed annually.

As in Chow and Lin (1971), β^acan be estimated using the OLS estimator, $\hat{\beta}^a_{OLS} = \left(\acute{X}^a X^a\right)^{-1}(\acute{X}^a y^a)$, under two assumptions: (a) the residuals follow a stationary first-order autoregressive process, $\varepsilon^q_t = \rho\varepsilon^q_{t-1} + \mu_t$where $|\rho| < 1$ and $\mu_t$has zero mean and a constant variance and (b) $\Omega^q = \sigma^2 I_{4T}$. Consequently, the second term on the right-hand side of equation (3) allocates one quarter of the annual residual to each quarter of the year.

2.2 Denton Process

The second method that we use for interpolation is the proportional Denton procedure. This method also computes the interpolation of a time series observed at low frequency by using a related high-frequency indicator time series. The Denton process imposes the condition that the sum of the interpolated series within each year equals the annual sum of the underlying series for that particular year. As recommended in International Monetary Fund (IMF) publications, this method is "relatively simple, robust, and well-suited for large-scaled applications." In particular, the Denton process may useful in cases where the higher-frequency indicators do not considerably associated with the low-frequency time series of the interest. Specifically, this method minimizes the distance between the two time series as much as possible using quadratic minimization framework.

Following Denton (1970, 1971) we briefly describe the procedure of the Denton method. However, we have changed the notations. Let I be an integer, and assume that our concern is I per year intra-annual time periods (in our case quarters). Let T be a number of years and the time series of interest spans over T years, consisting $n = I \times T$ observations. The original figures are given in column-vector form as follows:

$$y = [y_1, y_2, \dots, y_n]' \tag{4}$$

Further, assume that a column-vector of T annual sums is available from another data source, which is represented by

$$x = [x_1, x_2, \dots, x_n]' \tag{5}$$

Denton (1970, 1971) proposed a method in order to make adjustment in the preliminary vector y to derive a new column vector w presented by

$$w = [w_1, w_2, \dots, w_n]' \tag{6}$$

The proposed method satisfies the two conditions: (a) minimization of the distortion of the primary series (b) equalization of the sum of the I observations of the derived series in a specific year to the given annual sum for that year. More precisely, Denton (1970, 1971) specified a penalty function, denoted by $p(w, x)$, and select the w in order to minimize the penalty function given the following constraint

$$\sum_{(N-1)I+1}^{NI} w_t = x_N \qquad for\ N = 1, 2, \dots, T \tag{7}$$

In order to get the solution, Denton (1970, 1971) applied the Lagrange function in the following form

$$L = (w - y)' A(w - y) - 2\varphi'(x - B'w) \tag{8}$$

where$(w - y)' A(w - y)$ represents the form of penalty functions. Specifically, this presents a quadratic form in the disparities between the series of the interest and adjustment time-series values.A denotes a symmetric $n \times n$nonsingular matrix.[5]Finally φ and B $(n \times T)$aregiven as follows:

$$\varphi = [\varphi_1, \varphi_2, \dots, \varphi_n]' \text{and} \qquad B = \begin{bmatrix} j & 0 & \cdots & 0 \\ 0 & j & \cdots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \cdots & j \end{bmatrix}$$

where j is a $I - dimentional$ column vector. The each element of j is one and 0 being $I - dimentional$ null column vector. The solution of equation (8) can be obtained by taking derivatives of the equation with respect to the elements of w and φ. Equating the partial derivatives to zero and solving them we obtain the following solution:

$$\begin{bmatrix} w \\ \varphi \end{bmatrix} = \begin{bmatrix} A & B \\ B' & 0 \end{bmatrix} \begin{bmatrix} A & 0 \\ B' & I \end{bmatrix} \begin{bmatrix} y \\ d \end{bmatrix} \tag{9}$$

where I denotes an identity matrix with $(T \times T)$ dimension and 0 is the null matrix of $(T \times T)$ dimension. d is the vector of discrepancies between the two sets of annual totals and is defined as $d = x - B'w$.Thus, the solution for w is defined as $w = y + Cd$, where$C$is defined as $C = A^{-1}B(B'A^{-1}B)^{-1}$. Hence, the adjusted figures are equal to the original figures plus linear combinations of disparities of both sets of annual sums.

2.3Cubic Spline Interpolation

The third method, which we apply for estimating quarterly figures from annual data, is the cubic spline interpolation. This process of interpolation yields a piecewise seamless curve, which passes through each of the observations of the underlying series over the sample period. One can then use these derived cubic splines to determine the rates of change as well as a cumulative change for a specific interval. Unlike the Denton (1970) approach and the Chow-Lin (1971) procedure the cubic spline interpolation does not require any observed higher-frequency indicator variable related to the low-frequency series. Thus, it over comes the problem of the choice of low-frequency variable-related indicators observed at higher frequency. Specifically, this process fits a series of unique cubic polynomials between each of the observations of the series. Thus, the spline interpolation method correlates each of the data points effectively and efficiently even when the data may appear randomly. Further, it is relatively easy to implement. Below we discuss the procedure of splines that interpolates evenly spaced data points.

The idea of cubic spline interpolation was primarily based on the engineer's tool that is used

[5]See Denton (1971) for definition of A.

to draw a smooth curve, passing through a number of different points of the data. In spline interpolation process, the estimated coefficients on the cubic polynomial are used as weights for each internal. Specifically, the piecewise function $S(y)$ to make n equally spaced internals of the data is expressed as follows:

$$S(y) = \begin{cases} s_1(y) & if \quad y_1 \le y < y_2 \\ s_2(y) & if \quad y_2 \le y < y_3 \\ \vdots & \\ s_{n-1}(y) & if \quad y_{n-1} \le y < y_n \end{cases} \quad (10)$$

To define $S(y)$splines we need a total of $4n$ parameters to be estimated, as there are n evenly spaced intervals and four coefficients are required for each interval. These coefficients twist the curve so that it must pass through each of the observations without any interruption. This implies that the curve does not show any breaks in continuity. Specifically, $S_i(y)$is a third degree polynomial function and defined by

$$S_i(y) = \beta_{3i}(y - y_i)^3 + \beta_{2i}(y - y_i)^2 + \beta_{1i}(y - y_i)^1 + \beta_{0i} \qquad for\ y \in [y_i, y_{i+1}] \qquad (11)$$

Further, two conditions are imposed for each internal in order to get the cubic polynomial interpolation, which must match the values of the low-frequency series at both ends of the interval. These conditions are

$$S_i(y_i) = x_i, \quad S_i(y_{i+1}) = x_{i+1} \qquad (12)$$

where $x_i$can be obtained from equation (11). These conditions produce a piecewise continuous function, implying that each of sub-functions must joint at the data points at both ends of the interval. For making the curve seamless and smooth across the interval points we further required to impose the assumption of the continuity of the first and second derivatives:

$$S'_{i-1}(y_i) = S'_{i-1}(y_i), \quad S''_{i-1}(y_i) = S''_{i-1}(y_i) \qquad \forall\ i = 1, 2, \dots, n-1 \qquad (13)$$

The conditions of the first and second derivatives to be continuous result in the smooth unbroken curve over the intervals, passing through each of the data points over the sample periodwithout exhibiting any erratic behavior.

2.4 Data Sources

Annual data on GDP, total investment, private investment, public investment, total government expenditures, government current expenditures, and government development expenditures for the years 1971-2010 are obtained from the Handbook of Statistics on Pakistan Economy published by State of Pakistan (SBP). All these variables are measure in million Pak rupees. GDP data are based on prices of four different base periods. Specifically, we derive quarterly GDP from annual GDP at 1960 prices, 1981 prices, 2000 prices, and current prices. The data on investment spending and government expenditures are based on current prices. Quarterly data on consumer price index (CPI) and industrial production index(IPI) are from the International Financial Statistics (IFS) database. Both CPI and IPI are based on year 2005.

3Estimating Quarterly Figures from Annual Data

We start our empirical estimation by presenting summary statistics of annual and quarterly indicator variables that we us in our analysis. Table 1 presents summary statistics. To estimate quarterly figures of GDP (at different prices), investment spending, and government expenditures we implement three econometric methods of interpolation. Specifically, we use the Denton (1970) method, the Chow-Lin (1971) procedure, and the cubic spline prices for converting annual series into quarterly figures. In implanting the first two methods, we use consumer price index (CPI) and industrial production index (IPI) as observed quarterly indicators. The credibility of derived interpolations form these methods crucially depends on the extent at which the observed quarterly indicators are correlated with the underlying annual series. To that end we first test the times series properties of the variables by applying the KPSS unit root tests. Specifically, the PKSS test tests the null of stationary against the alternative hypothesis that the series follows a unit root.

Table 1: Summary Statistics of Observed Annual Data

Variables	Mean	Standard Dev.	Skewness	Kurtosis
Gross Domestic Product				
at 1960 prices	105137.3	59746.3	0.6635	2.4227
at 1980 prices	474795.6	270021.5	0.6625	2.4212
at 2000 prices	2551049.0	1422419.0	0.6324	2.4236
at current prices	2809270.0	3686406.0	1.7320	5.2989
Investment Spending				
Total investment	461064.3	643253.3	1.7272	4.7961
Private investment	316081.0	479757.1	1.7411	4.7192
Public Investment	144983.4	166427.3	1.6399	4.9123
Government Expenditures				
Total	620459.2	633209.9	1.5513	4.8899
Current	40903.5	38884.3	2.1796	8.5944
Development	59083.7	32578.5	0.2205	2.0777
Quarterly Indicators				
CPI	51.69	44.69	1.1911	3.7273
IPI	48.29	32.95	0.8687	2.6853

Note: Both CPI and IPI are based on 2005. The data on GDP, investment spending, and government expenditures are in million rupees.

We next apply the Johansen's (1991) cointegration test for testing the long-run equilibrium relationship between the annual variables that we interpolating and related annual predictor variables. Several empirical studies, such as Marcellino (1999), show that the intergration and cointegration properties are generally remain unchanged across different levels of (dis)aggregation of time series. This implies that if the annual time series follows unit root, so will the quarterly time series. This also implies that if two annual time series are integrated with each other, so will the (dis)aggregations of the two series be integrated. Thus, to derive robust and efficient quarterly estimates, it is necessary to know whether the predictor variables are cointegrated with the variables to be interpolated.

In order to test the robustness of the results from the Johansen's (1990) cointegration test we also apply the Engle-Granger (1987) two-step method of cointergation. Specifically, we

apply the PKSS unit root test to examine whether the residuals obtained from the cointergation (level) equation are stationary at their levels. The variables included in the model will be cointegrated if the residuals appear stationary at their levels.

The KPSS unit root test, the Johansen's (1991) cointegration tests, and the Engle-Granger (1987) two-step cointegration procedure are implemented using the econometric software EViews 7. Summary statistics and correlation estimates are obtained using Stata 12. For all transformations of annual GDP, investment, and government expenditures figures to quarterly observations, we also use Stata 12 in case of the Denton approach and the cubic spline interpolation. However, the quarterly estimates based on the Chow-Lin (1971) framework are obtained by using the computer software Matlab 2008a. Codes for all three methods we apply for quarterisationare available from the authors in order to update the interpolation.

Table 2 presents the results of unit root tests for levels as well as for first-differenced series. The KPSS test statistics are calculated at without and with a linear time trend. We use Bartlett Kernal as spectral estimation methods. The Newey-West (1994) bandwidth method is used to select the optimal bandwidth.

The results given in the table indicate that the null hypothesis of stationary can be rejected either at 5% or 1% level of significance for all the series at their levels. This finding holds regardless of whether we estimate the equation with or without a linear time trend. However, the KPSS results for first differences suggest that the series are integrated of order one. Specifically, we show that the null of stationary cannot be rejected at any acceptable level of significance, particularly when the KPSS tests are applied on the detrended first-differenced series.

Table 2: KPSS Unit Root Test Results

	Level		**Difference**	
Variables	**Without trend**	**With trend**	**Without trend**	**With trend**
Gross Domestic Product				
at 1960 prices	0.743***	0.188**	0.447	0.110
at 1980 prices	0.744***	0.188**	0.449	0.122
at 2000 prices	0.749***	0.206**	0.643**	0.126
at current prices	0.632**	0.211**	0.429	0.150
Investment Spending				
Total investment	0.616**	0.183**	0.515**	0.114
Private Investment	0.592**	0.184**	0.502**	0.108
Public Investment				
Government Expenditures				
Total Exp.	0.681**	0.178**	0.504**	0.143
Current Exp.	0.635**	0.052	0.108	0.068
Development Exp.	0.680**	0.070	0.131	0.094
Quarterly Indicators				
CPI	0.740***	0.220***	0.435	0.137
IPI	0.715**	0.161**	0.277	0.051

Note: ***, ** denote the regression of the null hypothesis of stationary at the 1% and 5% level of significance.

After confirmation of the order of integration of the underlying series we apply the cointegration test to examine the presence of the long-run relationship between the variables. The robustness of the results of cointegration is confirmed using an alternative test for cointegration. Table 3 presents the results. The Akaike Info Criterion (AIC) is applied for selecting optimal lag order for Johansen (1991) cointegration test. The results provide significance evidence of the existence of the cointegration. Both the cointegration tests we apply here give similar results. More specifically, we observe that the results from the Engle-Granger cointegration test are consistence with the results of the Johansen's cointegration test.

Table 3: The Cointegration Test Results

Dependent Variables	**Johenson Cointegration Test**		**The Engle-Granger Test**	
	Regressor		**Regressor**	
	CPI	**IPI**	**CPI**	**IPI**
Gross Domestic Product				
at 1960 prices	Yes	Yes	Yes	Yes
at 1980 prices	Yes	Yes	Yes	Yes
at 2000 prices	Yes	Yes	Yes	Yes
at current prices	Yes	Yes	Yes	Yes
Investment Spending				
Total investment	Yes	Yes	Yes	Yes
Private Investment	Yes	Yes	Yes	Yes
Public Investment	Yes	Yes	Yes	Yes
Government Expenditures				
Total Exp.	Yes	Yes	Yes	Yes
Current Exp.	Yes	Yes	Yes	Yes
Development Exp.	Yes	Yes	Yes	Yes

Note: Yes means the statistically significant existence of the cointegration.

Next we estimate the Pearson product-moment correlations of the derived quarterly series based on the cubic spline method with the derived quarterly series using the Chow-Lin method and the Denton procedure. Table 4 presents the estimates for series when CPI is used as the related-indicator variable in deriving quartering figures, while Table 5 presents the correlations for series when IPI is used as the indicator. The estimated correlation coefficients are positive, sizeable, and significantly different from zero. This implies that although the related-indicator variable methods of disaggregation (the Chow-Lin and the Denton methods) and the disaggregation method based on univariate framework (the cubic spline) have different statistically properties, they yield similar estimates of quarterly figures.

The time series plots of generated quarterly series based on all three methods are given in Figures 1 to 10. We also plot the annual series along with interpolated quarterly series in case of splines for comparison purpose. The plots illustrate that while the series quartered using the Denton approach and the Chow-Lin procedure exhibit similar trends. However, the quarterisation based on the farmer approach is more variable as compared to that based on the later approach.

Table 4: Correlation estimates for interpolated quarterly series using CPI as a related-indicator variable

GDP at different prices								
	Chow-Lin method				**Denton method**			
Splines	1960	1981	2000	Current	1960	1981	2000	Current
1960	0.9998				0.9997			
1981		0.9998				0.9997		
2000			0.9998				0.9996	
Current				0.9996				0.9997
Investment Spending								
	Chow-Lin method				**Denton method**			
Splines	Total	Private	Public		Total	Private	Public	
Total	0.9985				0.9984			
Private		0.9982				0.9980		
Public			0.9979				0.9978	
Government Expenditures								
	Chow-Lin method				**Denton method**			
Splines	Total	Devep.	Current		Total	Devep.	Current	
Total	0.9968				0.9968			
Devep.		0.9936				0.9934		
Current			0.8834				0.8810	

Note: the estimates in the table are the Pearson product-moment correlation coefficient. All the correlation estimates are statistically different from zero at any acceptable level of significant.

Table 5: Correlation estimates for interpolated quarterly series using IPI as a related-indicator variable

GDP at different prices								
	Chow-Lin method				**Denton method**			
Splines	1960	1981	2000	Current	1960	1981	2000	Current
1960	0.9893				0.9762			
1981		0.9893				0.9762		
2000			0.9894				0.9752	
Current				0.9913				0.9944
Investment Spending								
	Chow-Lin method				**Denton method**			
Splines	Total	Private	Public		Total	Private	Public	
Total	0.9894				0.9945			
Private		0.9900				0.9947		
Public			0.9857				0.9918	
Government Expenditures								
	Chow-Lin method				**Denton method**			
Splines	Total	Devep.	Current		Total	Devep.	Current	
Total	0.9847				0.9906			
Devep.		0.9755				0.9755		
Current			0.8777				0.8777	

Note: the estimates in the table are the Pearson product-moment correlation coefficient. All the correlation estimates are statistically different from zero at any acceptable level of significant.

4 Conclusions

In this paper we use three different econometric methods for converting annual GDP, investment, and government expenditure data into quarterly data over the period 1971-2010. In implementing the Denton (1970) and the Chow-Lin (1971) framework, we use observed quarterly CPI and IPI as the indicator variables. We also use univariate interpolation process, namely the cubic spline interpolation for quartering the variables.

We observe that the generated quarterly series of the corresponding variable using all three methods are highly correlated. Time series plots of the generated quarterly data provide evidence that the series quartered using the Denton approach and the Chow-Lin procedure exhibit similar trends. However, we notice that the quarterisation based on the farmer approach is more variable as compared to that based on the later approach. We think that the methods we used here are relatively easy to implement and provide robust as well as reliable quarterly estimates for underlying variables.

As for future work on the disaggregation of annual data on national income accounts of Pakistan, it would be worth exploring the structure breaks in the data. The presence of structure breaks in a time series would definitely affect the behaviour of the series. However, the approached we utilized here are unable to take into account structure breaks in the data.

The estimation codes for all three econometric methods we implemented here to update the interpolation and the quarterly data sets we generated (quarterly GDP at different prices, quarterly investment series, and quarterly government expenditure series) in this paper for the period 1971Q1-2010Q4 can be obtained from the authors as an Excel or Stata file through email by writing to abdulrashid@iiu.edu.pk.

References

Arby, M. F. (2008), "Some issues in the National Income Accounts of Pakistan (Rebasing, Quarterly and Provincial Accounts and Growth Accounting)", PhD Dissertation, Pakistan Institute of Development Economics, Islamabad.

Arby, M. F. and Batool, I. (2007), Estimating quarterly gross fixed capital formation", SBP Working Paper No. 17.

Bengaliwala, K. (1995), "Temporal and regional decomposition of National Accounts of Pakistan", PhD Dissertation, Department of Economics, University of Karachi.

Boot, J. C. B., Fiebes, W., and Lisman, J. H. C. (1969), "Further methods of derivation of quarterly figures from annual data," *Applied Statistics*, 16, 65-75.

Chan, W., (1993), "Disaggregation of annual time-series data to quarterly figures: A comparative study", *Journal of Forecasting*, 12, 677-88.

Chow, G. C. and Lin, A.(1971), "Best linear unbiased interpolation, distribution and extrapolation of time series by related series," *Review of Economics and Statistics*, 53, 372-5.

Denton, F. T. (1970), "Quadratic minimization procedures for adjusting monthly or quarterly time series to independent annual totals", McMaster University Department of Economics Working Paper 70-01.

Denton, F. T. (1971), "Adjustment of monthly or quarterly series to annual totals: An approach based on quadratic minimization", *Journal of the American Statistical Association*, 66, 92–102.

Engle, R. F. and Granger, C. W. J. (1987), "Co-integration and error correction: Representation, estimation, and testing", Econometrica, 55, 251-276.

Fernandez, R. B. (1981), "A methodological note on the estimation of time series", *Review of Economics and Statistics*, 63, 471-6.

Friedman, M. (1962), "The interpolation of time series by related series" ,*Journal of the American Statistical Association*, 57, 729–57.

Guerrero, V. M. (1989),"Temporal disaggregation of time series: An ARIMA approach", *International Statistical Review*, 58, 29-46.

Harvey, A. C. and Pierse, R. G., (1984), "Estimating missing observations in economic time series", *Journal of the American Statistical Association*, 79, 125-31.

Johansen, S. (1990), "Estimation and hypothesis testing of cointegration vectors in Gaussian vector autoregressive models", Economterica, 59, 1551-1580.

Kemal, A. R. and Arby, M. F. (2004), "Quarterisation of annual GDP of Pakistan," Statistical Papers Series No 5, PIDE, Islamabad.

Kwiatkowski, D., Phillips, P.C.B., Schmidl, P. and Shin, Y. (1992),"Testing the null hypothesis ofstationarity against the alternative of a unit root: How sure are we that economic time series have a unit root?", Journal of Econometrics, 45, 159–178.

Lisman, J.H.C. and J. Sandee (1964), "Derivation of quarterly figures from annual data",*Applied Statistics*, 13, 87-90

Litterman, R. B. (1983), "A random walk, Markow model for the distribution of time series", *Journal of Business and Economics Statistics*, 1, 169-73.

Marcellino, M. (1999), "Some consequences of temporal aggregation in empirical analysis",*Journal of Business and Economic Statistics*, 17,129-136.

Newey, W. and West, K. (1994), "Automatic lag selection and the construction of unit root tests with good size and power", Econometrica, 66, 1519-1954.

Table A1: Interpolated Quarterly GDP using Denton Method

(Million Rupees)

		GDP (1960 Prices)		GDP (1981 Prices)		GDP (2000 Prices)	
		Indicator		Indicator		Indicator	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
1971	Jan-Mar	7984.45	9306.12	36498.93	42551.25	200559.09	233859.42
	Apr-Jun	7978.93	8502.92	36431.08	38820.18	200013.64	213116.55
	Jul-Sep	8132.94	6860.46	37047.71	31234.00	203047.84	171114.38
	Oct-Dec	8239.69	7666.51	37402.28	34774.57	204455.43	189985.65
1972	Jan-Mar	8361.66	9290.28	37777.87	41947.31	205781.61	228386.41
	Apr-Jun	8375.66	7833.88	37717.21	35271.18	204943.12	191626.26
	Jul-Sep	8427.99	7286.14	37880.67	32754.50	205534.29	177745.39
	Oct-Dec	8329.69	9084.70	37421.25	40824.01	202968.98	221469.94
1973	Jan-Mar	8390.86	10506.55	37738.00	47266.21	204859.77	256636.49
	Apr-Jun	8408.80	8444.84	37851.57	38019.51	205611.52	206547.29
	Jul-Sep	9294.09	7400.36	41860.56	33330.74	227486.81	181130.37
	Oct-Dec	9679.25	9421.24	43602.87	42436.54	236985.90	230629.85
1974	Jan-Mar	9334.59	10447.27	42036.87	47043.78	228418.81	255609.15
	Apr-Jun	9394.16	9235.52	42294.74	41579.25	229777.05	225884.67
	Jul-Sep	9832.90	8730.08	44263.13	39299.74	240442.30	213484.70
	Oct-Dec	9877.36	10026.14	44461.27	45133.24	241510.83	245170.48
1975	Jan-Mar	9850.02	10679.10	44342.18	48075.91	240881.24	261170.18
	Apr-Jun	10018.50	9779.94	45103.78	44030.01	245031.87	239199.57
	Jul-Sep	9987.52	9143.90	44966.20	41167.50	244292.27	223652.52
	Oct-Dec	10073.96	10327.06	45355.85	46494.58	246410.62	252593.72
1976	Jan-Mar	10098.61	11705.81	45465.77	52701.25	247002.46	286308.78
	Apr-Jun	10225.38	9926.39	46035.77	44689.64	250095.41	242782.05
	Jul-Sep	10346.20	8660.44	46579.22	38989.97	253045.71	211816.96
	Oct-Dec	10558.81	10936.35	47536.24	49236.14	258244.42	267480.22
1977	Jan-Mar	10527.38	11296.20	47394.93	50856.25	257478.36	276282.87
	Apr-Jun	10384.97	10209.91	46753.94	45965.80	253997.28	249715.66
	Jul-Sep	10679.73	9269.44	48081.15	41731.87	261208.19	226714.60
	Oct-Dec	10808.93	11625.46	48662.98	52339.07	264369.17	284339.87
1978	Jan-Mar	10989.98	12900.37	49478.27	58079.15	268797.84	315523.24
	Apr-Jun	11191.12	11270.31	50383.72	50740.29	273716.47	275653.56
	Jul-Sep	11765.71	9517.25	52970.26	42847.46	287767.96	232774.49
	Oct-Dec	11732.19	11991.07	52818.76	53984.11	286944.73	293275.71
1979	Jan-Mar	11640.90	12863.59	52406.90	57911.10	284707.22	314609.53
	Apr-Jun	11696.17	11504.62	52655.95	51793.44	286060.23	281374.54
	Jul-Sep	12563.53	11115.36	56562.25	50042.55	307281.82	271862.68
	Oct-Dec	12303.40	12720.44	55393.91	57271.91	300934.73	311137.25
1980	Jan-Mar	12394.99	13972.70	55810.39	62915.24	303197.52	341795.55
	Apr-Jun	12660.68	12344.63	57005.81	55583.00	309691.91	301962.32
	Jul-Sep	13304.34	11581.29	59897.22	52139.38	325399.98	283254.43
	Oct-Dec	13376.00	13837.38	60206.57	62282.38	327080.59	338357.70

Table A1: Interpolated Quarterly GDP using Denton Method (Continued)

(Million Rupees)

		GDP (1960 Prices)		GDP (1981 Prices)		GDP (2000 Prices)	
		Indicator		Indicator		Indicator	
Year	Quarter	CPI	IPI	CPI	IPI	CPI	IPI
1981	Jan-Mar	13224.71	15066.29	59505.59	67790.33	323272.35	368280.35
	Apr-Jun	13358.43	13132.70	60111.44	59096.87	326563.69	321051.88
	Jul-Sep	14125.26	12260.19	63593.78	55199.58	345481.91	299879.29
	Oct-Dec	14339.61	14588.82	64620.20	65744.23	351058.05	357164.48
1982	Jan-Mar	14378.63	14938.84	64885.89	67414.93	352501.39	366240.76
	Apr-Jun	14534.29	14938.86	65650.63	67479.28	356655.93	366590.33
	Jul-Sep	14922.23	13312.33	67438.36	60163.09	366367.97	326844.09
	Oct-Dec	15176.85	15821.97	68596.12	71513.70	372657.70	388507.82
1983	Jan-Mar	15260.72	16537.08	68953.04	74720.15	374596.73	405927.32
	Apr-Jun	15541.43	16139.14	70205.59	72905.04	381401.37	396066.52
	Jul-Sep	15893.35	13904.22	71786.11	62801.14	389987.76	341175.72
	Oct-Dec	16322.49	16437.55	73722.26	74240.66	400506.14	403322.45
1984	Jan-Mar	16060.74	17114.28	72545.45	77303.51	394112.97	419961.76
	Apr-Jun	16093.55	15129.04	72697.63	68340.60	394939.67	371269.53
	Jul-Sep	16523.65	15144.54	74642.89	68413.31	405507.58	371664.53
1985	Oct-Dec	16844.06	18134.14	76091.03	81919.58	413374.78	445039.17
	Jan-Mar	17214.72	19436.08	77764.38	87799.33	422465.52	476981.73
	Apr-Jun	17595.83	15949.85	79485.16	72049.81	431813.87	391420.35
	Jul-Sep	18075.09	16008.81	81649.50	72315.47	443572.00	392863.61
	Oct-Dec	18341.36	19832.26	82851.97	89586.39	450104.62	486690.30
1986	Jan-Mar	18509.14	20149.62	83609.75	91020.03	454221.43	494478.79
	Apr-Jun	18682.40	17286.31	84392.35	78085.92	458473.08	424212.51
	Jul-Sep	19068.96	17312.78	86138.52	78205.54	467959.39	424862.40
	Oct-Dec	19499.50	21011.29	88083.38	94912.52	478525.10	515625.30
1987	Jan-Mar	19452.57	22075.30	87871.50	99718.97	477373.99	541736.98
	Apr-Jun	19827.91	18489.88	89567.09	83522.91	486585.47	453749.62
	Jul-Sep	20361.96	17251.85	91979.66	77930.55	499692.03	423368.33
	Oct-Dec	20519.56	22344.97	92691.74	100937.57	503560.51	548357.07
1988	Jan-Mar	20418.03	25525.16	92233.27	115303.46	501069.80	626401.74
	Apr-Jun	20919.27	19944.80	94497.58	90095.68	513370.97	489457.05
	Jul-Sep	21892.21	17544.68	98892.56	79253.68	537247.34	430556.42
	Oct-Dec	22091.49	22306.36	99792.59	100763.18	542136.88	547409.79
1989	Jan-Mar	22026.17	25025.49	99497.23	113045.78	540532.35	614136.70
	Apr-Jun	22290.72	21092.50	100692.05	95279.41	547023.42	517618.50
	Jul-Sep	22490.30	18529.63	101593.57	83702.37	551921.01	454724.61
	Oct-Dec	22616.81	24776.39	102165.15	111920.45	555026.22	608023.19
1990	Jan-Mar	22535.33	26089.42	101797.36	117852.00	553028.06	640247.14
	Apr-Jun	22962.46	21016.95	103726.97	94938.65	563510.93	515767.20
	Jul-Sep	23867.31	20203.61	107814.50	91264.67	585716.99	495807.76
	Oct-Dec	24161.89	26217.02	109145.17	118428.67	592946.02	643379.90

Table A1: Interpolated Quarterly GDP using Denton Method (Continued)

(Million Rupees)

		GDP (1960 Prices)		GDP (1981 Prices)		GDP (2000 Prices)	
		Indicator		Indicator		Indicator	
Year	Quarter	CPI	IPI	CPI	IPI	CPI	IPI
1991	Jan-Mar	24122.26	27853.63	108966.06	125821.52	591972.98	683542.55
	Apr-Jun	24550.15	21767.88	110898.85	98330.68	602473.12	534194.83
	Jul-Sep	24825.87	21717.01	112144.34	98100.90	609239.45	532946.52
	Oct-Dec	25235.72	27395.48	113995.75	123751.90	619297.44	672299.10
1992	Jan-Mar	25752.13	30612.15	116328.57	138282.48	631970.82	751238.55
	Apr-Jun	26506.80	23919.87	119737.64	108051.86	650491.04	587006.51
	Jul-Sep	27053.44	22616.51	122206.92	102164.22	663905.69	555021.03
	Oct-Dec	27038.63	29202.46	122139.88	131914.44	663541.45	716642.91
1993	Jan-Mar	26746.02	31417.77	120817.93	141921.29	656359.70	771006.20
	Apr-Jun	26970.60	24309.64	121832.27	109812.11	661870.27	596568.91
	Jul-Sep	27392.15	22973.18	123736.45	103774.98	672215.13	563771.77
	Oct-Dec	27658.23	30066.41	124938.35	135816.62	678744.90	737843.12
1994	Jan-Mar	27755.44	34125.17	125377.47	154150.98	681130.99	837448.46
	Apr-Jun	28201.94	26508.71	127394.38	119745.70	692088.01	650536.11
	Jul-Sep	28601.17	23569.83	129197.76	106470.10	701884.39	578413.04
	Oct-Dec	29147.46	29502.29	131665.39	133268.21	715288.61	723994.39
1995	Jan-Mar	29270.69	33246.40	132221.94	150181.05	718309.84	815870.16
	Apr-Jun	29096.25	28065.64	131433.98	126778.47	714029.63	688735.49
	Jul-Sep	29770.96	24266.96	134481.87	109619.09	730591.18	595521.44
	Oct-Dec	30267.10	32826.01	136723.20	148282.39	742774.35	805577.90
1996	Jan-Mar	30909.40	36147.25	139624.93	163285.58	758548.90	887106.18
	Apr-Jun	31370.41	29119.61	141707.66	131540.25	769861.54	714631.11
	Jul-Sep	31788.43	27253.91	143596.07	123112.53	780104.74	668821.79
	Oct-Dec	32149.76	33697.23	145228.34	152218.63	788940.82	826896.93
1997	Jan-Mar	32283.51	37782.92	145832.47	170674.61	792173.32	927077.72
	Apr-Jun	32152.32	28584.15	145239.80	129121.54	788964.17	701393.34
	Jul-Sep	31879.05	27468.51	144005.44	124081.94	782333.95	674103.99
	Oct-Dec	32052.12	34531.42	144787.29	155986.91	786724.56	847620.95
1998	Jan-Mar	32347.32	42567.85	146120.90	192289.62	794183.00	1045245.00
	Apr-Jun	32959.80	29907.94	148887.63	135101.61	809165.38	734264.42
	Jul-Sep	33557.03	27204.24	151585.30	122888.17	823487.88	667525.76
	Oct-Dec	33987.85	33171.97	153531.17	149845.60	833424.74	813225.82
1999	Jan-Mar	34191.18	41952.69	154449.20	189509.63	837475.33	1027096.70
	Apr-Jun	34378.77	30443.88	155296.40	137521.61	842322.90	745837.86
	Jul-Sep	34704.85	28306.49	156769.37	127866.57	851777.19	694934.95
	Oct-Dec	35136.20	37707.94	158718.04	170335.19	865088.57	928794.47
2000	Jan-Mar	35227.25	40117.52	159129.77	181220.31	871333.76	992745.77
	Apr-Jun	35680.25	33295.19	161176.31	150402.43	884650.87	825543.17
	Jul-Sep	36187.34	32786.31	163467.06	148103.78	897356.99	812902.85
	Oct-Dec	36722.16	37617.98	165882.86	169929.48	908678.37	930828.21

Table A1: Interpolated Quarterly GDP using Denton Method (Continued)

(Million Rupees)

		GDP (1960 Prices)		GDP (1981 Prices)		GDP (2000 Prices)	
		Indicator		Indicator		Indicator	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
2001	Jan-Mar	36696.07	45709.61	165764.74	206480.96	903986.16	1125892.10
	Apr-Jun	36829.05	33989.28	166365.19	153537.31	903559.51	833611.79
	Jul-Sep	37198.50	32706.58	168033.89	147742.87	909252.44	798972.56
	Oct-Dec	37569.39	35887.54	169709.18	162111.86	915292.90	873614.51
2002	Jan-Mar	37800.60	47135.01	170753.56	212919.12	918269.55	1144150.80
	Apr-Jun	38374.71	37300.84	173346.94	168496.07	928438.22	901819.98
	Jul-Sep	39290.00	32589.44	177481.62	147213.73	945650.05	783966.64
	Oct-Dec	39835.70	38275.71	179946.89	172900.08	952760.18	915180.60
2003	Jan-Mar	40529.28	50054.95	183080.27	226109.98	962269.47	1187841.80
	Apr-Jun	41112.07	37007.80	185713.07	167173.10	969293.87	871949.96
	Jul-Sep	41902.58	37975.78	189284.05	171545.77	981301.89	888616.64
	Oct-Dec	43377.07	41882.47	195944.61	189193.14	1009238.80	973695.64
2004	Jan-Mar	43925.54	48259.64	198421.94	218000.08	1015546.30	1115345.70
	Apr-Jun	44999.73	45256.78	203274.12	204435.25	1038701.10	1044696.10
	Jul-Sep	46155.62	41326.65	208495.42	186681.84	1068807.10	957299.57
	Oct-Dec	46794.11	47031.94	211379.53	212453.83	1092527.60	1098240.60
2005	Jan-Mar	47139.44	51064.63	212939.42	230670.41	1115439.20	1208643.60
	Apr-Jun	47946.22	48153.02	216583.86	217518.02	1144611.20	1149831.40
	Jul-Sep	48408.54	45456.88	218672.40	205339.09	1160407.00	1089891.60
	Oct-Dec	48962.81	47782.47	221176.32	215844.49	1172772.50	1144863.50
2006	Jan-Mar	49556.78	53541.98	223859.71	241861.79	1180071.90	1275184.10
	Apr-Jun	50439.06	53118.08	227845.36	239947.15	1194882.20	1258228.70
	Jul-Sep	52181.20	49160.96	235715.06	222071.93	1230703.30	1158957.20
	Oct-Dec	53394.96	49750.98	241197.88	224737.13	1254818.60	1168106.00
2007	Jan-Mar	54231.64	56882.19	244977.20	256950.33	1271023.00	1331136.20
	Apr-Jun	54936.10	57749.63	248159.29	260868.64	1288655.70	1353533.80
	Jul-Sep	55611.38	53592.56	251209.58	242090.11	1310496.70	1264067.40
	Oct-Dec	55588.88	52143.62	251107.93	235544.92	1321534.60	1242972.60
2008	Jan-Mar	54769.79	61386.46	247407.95	277297.01	1320298.80	1484738.80
	Apr-Jun	56479.82	60067.34	255132.55	271338.19	1375698.20	1465532.10
	Jul-Sep	58470.02	52938.95	264122.69	239137.54	1432385.50	1295711.30
	Oct-Dec	58653.37	53980.25	264950.81	243841.26	1436992.60	1319392.70
2009	Jan-Mar	57761.01	59297.27	260919.71	267859.33	1406248.60	1441407.70
	Apr-Jun	58748.43	60193.39	265379.98	271907.19	1423180.90	1457530.30
	Jul-Sep	60276.94	58150.40	272284.53	262678.48	1455150.90	1404598.20
	Oct-Dec	61538.62	60683.94	277983.79	274123.00	1482955.60	1463999.70

Table A2: Interpolated Quarterly GDP using Denton Method

(Million Rupees)

		GDP (Current Prices)	
		Indicator	
Year	**Quarter**	**CPI**	**IPI**
1973	Jan-Mar	14716.92	18643.80
	Apr-Jun	15418.45	15572.59
	Jul-Sep	17850.26	14257.95
	Oct-Dec	19506.38	19017.66
1974	Jan-Mar	19769.03	22136.75
	Apr-Jun	20919.93	20597.52
	Jul-Sep	23040.75	20519.43
	Oct-Dec	24372.29	24848.31
1975	Jan-Mar	25616.06	27929.60
	Apr-Jun	27352.67	26777.81
	Jul-Sep	28462.73	26042.83
	Oct-Dec	29751.54	30432.76
1976	Jan-Mar	30653.03	35514.75
	Apr-Jun	31874.70	30982.67
	Jul-Sep	33116.03	27793.67
	Oct-Dec	34720.24	36072.92
1977	Jan-Mar	35606.58	38294.54
	Apr-Jun	36146.77	35564.18
	Jul-Sep	38238.10	33168.10
	Oct-Dec	39756.56	42721.18
1978	Jan-Mar	41436.45	48680.18
	Apr-Jun	42995.21	43363.73
	Jul-Sep	45819.59	37117.31
	Oct-Dec	46082.75	47172.78
1979	Jan-Mar	45899.74	50740.07
	Apr-Jun	46638.78	45895.02
	Jul-Sep	51043.59	45190.69
	Oct-Dec	51332.90	53089.22
1980	Jan-Mar	53498.85	60348.05
	Apr-Jun	56412.62	55063.72
	Jul-Sep	61085.91	53260.19
	Oct-Dec	63181.62	65507.05

Table A2: Interpolated Quarterly GDP using Denton Method (Continued)

(Million Rupees)

		GDP (Current Prices)	
		Indicator	
Year	**Quarter**	**CPI**	**IPI**
1981	Jan-Mar	64173.716	73298.102
	Apr-Jun	66578.072	65586.341
	Jul-Sep	72254.119	62785.597
	Oct-Dec	75190.093	76525.960
1982	Jan-Mar	77157.324	80160.068
	Apr-Jun	79428.104	81638.181
	Jul-Sep	82678.957	73774.353
	Oct-Dec	84894.614	88586.398
1983	Jan-Mar	85828.807	93142.778
	Apr-Jun	88544.452	92079.819
	Jul-Sep	92416.156	80924.607
	Oct-Dec	97597.585	98239.796
1984	Jan-Mar	99499.632	105945.150
	Apr-Jun	102469.960	96274.583
	Jul-Sep	107260.280	98350.623
1985	Oct-Dec	110572.130	119231.640
	Jan-Mar	113368.730	128053.170
	Apr-Jun	116326.260	105436.490
	Jul-Sep	120033.110	106290.350
	Oct-Dec	122428.900	132376.990
1986	Jan-Mar	124264.930	135345.860
	Apr-Jun	126290.500	116910.920
	Jul-Sep	129925.610	117958.890
	Oct-Dec	134050.960	144316.320
1987	Jan-Mar	135066.540	153000.810
	Apr-Jun	139747.770	130227.220
	Jul-Sep	146401.690	124163.180
	Oct-Dec	151263.010	165087.790
1988	Jan-Mar	155090.430	194595.620
	Apr-Jun	163399.810	156308.020
	Jul-Sep	175499.120	140994.490
	Oct-Dec	181399.640	183490.860
1989	Jan-Mar	184902.910	210349.620
	Apr-Jun	190654.740	180538.840
	Jul-Sep	195345.040	160992.900
	Oct-Dec	198842.310	217863.640
1990	Jan-Mar	199895.890	231271.030
	Apr-Jun	206872.680	189417.010
	Jul-Sep	219891.500	186327.830
	Oct-Dec	229282.930	248927.130

Table A2: Interpolated Quarterly GDP using Denton Method (Continued)

(Million Rupees)

		GDP (Current Prices)	
		Indicator	
Year	**Quarter**	**CPI**	**IPI**
1991	Jan-Mar	237498.13	274494.30
	Apr-Jun	250060.17	221889.74
	Jul-Sep	260739.56	228265.50
	Oct-Dec	272302.15	295950.46
1992	Jan-Mar	284376.20	338538.00
	Apr-Jun	298973.98	270128.08
	Jul-Sep	311196.28	260386.03
	Oct-Dec	316838.54	342332.89
1993	Jan-Mar	319021.04	374551.20
	Apr-Jun	328293.48	295993.54
	Jul-Sep	341108.74	286453.67
	Oct-Dec	353205.74	384630.59
1994	Jan-Mar	364296.87	448718.02
	Apr-Jun	381945.13	360075.75
	Jul-Sep	401321.42	331961.29
	Oct-Dec	425533.58	432341.93
1995	Jan-Mar	446596.88	509576.80
	Apr-Jun	459237.05	444123.90
	Jul-Sep	481029.80	392051.92
	Oct-Dec	495207.26	536318.37
1996	Jan-Mar	506376.94	590236.55
	Apr-Jun	519147.59	481596.50
	Jul-Sep	536291.93	460911.38
	Oct-Dec	558356.53	587428.57
1997	Jan-Mar	583391.14	685363.33
	Apr-Jun	601347.77	535324.15
	Jul-Sep	613359.88	528369.99
	Oct-Dec	630213.21	679254.53
1998	Jan-Mar	645407.87	852043.68
	Apr-Jun	664141.11	604109.20
	Jul-Sep	679607.92	551187.77
	Oct-Dec	688499.11	670315.34
1999	Jan-Mar	689414.51	839297.69
	Apr-Jun	706360.44	624675.14
	Jul-Sep	742987.35	609359.30
	Oct-Dec	799616.70	865046.87
2000	Jan-Mar	866734.92	995523.23
	Apr-Jun	929444.19	870000.15
	Jul-Sep	980091.38	887300.72
	Oct-Dec	1017165.50	1040611.90

Table A2: Interpolated Quarterly GDP using Denton Method (Continued)

(Million Rupees)

		GDP (Current Prices)	
		Indicator	
Year	**Quarter**	**CPI**	**IPI**
2001	Jan-Mar	1023334.00	1274424.30
	Apr-Jun	1032505.40	953343.27
	Jul-Sep	1046902.60	921350.61
	Oct-Dec	1059912.00	1013535.80
2002	Jan-Mar	1067492.90	1331866.20
	Apr-Jun	1085701.80	1055668.10
	Jul-Sep	1114561.20	924613.71
	Oct-Dec	1133943.00	1089551.00
2003	Jan-Mar	1158502.00	1431187.80
	Apr-Jun	1182091.70	1064811.60
	Jul-Sep	1213953.30	1101154.60
	Oct-Dec	1268294.90	1225688.00
2004	Jan-Mar	1298406.70	1427638.00
	Apr-Jun	1350920.30	1359820.60
	Jul-Sep	1413806.30	1267114.00
	Oct-Dec	1469529.70	1478090.40
2005	Jan-Mar	1525217.90	1653628.10
	Apr-Jun	1596625.00	1605291.80
	Jul-Sep	1657138.00	1558378.80
	Oct-Dec	1720801.20	1682483.40
2006	Jan-Mar	1785630.40	1933431.20
	Apr-Jun	1856350.90	1958678.00
	Jul-Sep	1954210.70	1842918.50
	Oct-Dec	2027013.00	1888177.30
2007	Jan-Mar	2078998.90	2176495.40
	Apr-Jun	2135581.80	2243129.80
	Jul-Sep	2202535.20	2127010.30
	Oct-Dec	2255891.10	2126371.60
2008	Jan-Mar	2293982.80	2584775.80
	Apr-Jun	2460106.00	2632581.80
	Jul-Sep	2667807.40	2428217.90
	Oct-Dec	2820902.80	2597223.50
2009	Jan-Mar	2941231.60	2994524.40
	Apr-Jun	3118909.00	3166015.70
	Jul-Sep	3286179.10	3167986.60
	Oct-Dec	3393016.30	3410809.30
2010	Jan-Mar	3486509.40	3913026.60
	Apr-Jun	3579876.00	3858005.70
	Jul-Sep	3735026.10	3443013.80
	Oct-Dec	3867016.50	3454381.90

Table A3: Interpolated Quarterly Investment using Denton Method

(Million Rupees)

		Total Investment		**Private Investment**		**Public Investment**	
		Indicator		**Indicator**		**Indicator**	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
1971	Jan-Mar	1768.22	2063.34	878.48	1025.11	889.74	1038.23
	Apr-Jun	1755.65	1869.85	875.26	932.81	880.39	937.05
	Jul-Sep	1766.50	1485.63	886.85	746.89	879.65	738.73
	Oct-Dec	1754.63	1626.18	890.41	826.19	864.22	799.99
1972	Jan-Mar	1733.19	1919.92	892.67	988.58	840.52	931.34
	Apr-Jun	1704.18	1593.11	886.74	827.99	817.43	765.12
	Jul-Sep	1697.82	1469.36	888.22	768.42	809.60	700.95
	Oct-Dec	1676.81	1829.60	877.37	960.01	799.45	869.59
1973	Jan-Mar	1705.37	2132.73	887.23	1118.70	818.13	1014.03
	Apr-Jun	1746.95	1759.87	886.17	892.92	860.78	866.95
	Jul-Sep	2000.76	1605.32	967.84	767.31	1032.91	838.01
	Oct-Dec	2192.93	2148.08	984.75	947.06	1208.18	1201.02
1974	Jan-Mar	2261.66	2526.89	914.55	1003.86	1347.11	1523.04
	Apr-Jun	2457.08	2417.70	910.57	888.29	1546.51	1529.42
	Jul-Sep	2801.67	2502.41	974.64	873.20	1827.03	1629.21
	Oct-Dec	3093.59	3166.99	1040.23	1074.64	2053.35	2092.33
1975	Jan-Mar	3419.93	3737.58	1145.41	1259.88	2274.49	2477.66
	Apr-Jun	3855.41	3780.78	1268.10	1244.55	2587.28	2536.20
	Jul-Sep	4244.79	3888.63	1354.35	1236.34	2890.45	2652.29
	Oct-Dec	4696.87	4810.01	1439.14	1466.23	3257.79	3343.85
1976	Jan-Mar	5117.73	5950.86	1493.94	1726.67	3623.95	4224.39
	Apr-Jun	5528.80	5387.85	1570.24	1526.30	3958.80	3861.79
	Jul-Sep	5883.15	4942.46	1654.26	1391.33	4229.17	3551.38
	Oct-Dec	6239.32	6487.82	1764.56	1838.71	4475.07	4649.44
1977	Jan-Mar	6395.40	6883.00	1847.78	1992.81	4547.94	4890.54
	Apr-Jun	6445.61	6341.67	1892.15	1863.02	4553.74	4478.93
	Jul-Sep	6725.48	5831.24	1995.20	1728.94	4730.51	4102.50
	Oct-Dec	6854.51	7365.10	2043.87	2194.24	4810.80	5171.03
1978	Jan-Mar	6964.92	8173.24	2076.37	2433.86	4888.59	5739.41
	Apr-Jun	7091.63	7142.70	2121.14	2135.76	4970.47	5006.91
	Jul-Sep	7458.80	6034.92	2246.12	1819.22	5212.64	4215.67
	Oct-Dec	7444.65	7609.14	2265.38	2320.15	5179.30	5289.01
1979	Jan-Mar	7398.00	8170.80	2283.38	2530.45	5114.76	5640.52
	Apr-Jun	7527.38	7407.24	2336.33	2303.53	5191.27	5103.94
	Jul-Sep	8279.85	7334.91	2561.84	2267.77	5718.32	5067.42
	Oct-Dec	8399.77	8692.05	2567.45	2647.25	5832.64	6045.13
1980	Jan-Mar	8858.92	9997.54	2653.25	2969.98	6205.98	7027.91
	Apr-Jun	9439.85	9217.64	2911.01	2837.59	6529.12	6380.33
	Jul-Sep	10317.13	8998.99	3420.16	2999.72	6897.21	5999.48
	Oct-Dec	10759.11	11160.83	3970.58	4147.71	6788.69	7013.29

Table A3: Interpolated Quarterly Investment using Denton Method(Continued)

(Million Rupees)

		Total Investment		Private Investment		Public Investment	
		Indicator		Indicator		Indicator	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
1981	Jan-Mar	11008.04	12580.58	4633.67	5344.26	6374.45	7236.39
	Apr-Jun	11452.76	11282.71	5198.88	5141.75	6253.88	6140.96
	Jul-Sep	12409.75	10780.06	5813.91	5049.41	6595.80	5730.61
	Oct-Dec	12837.46	13064.66	5962.54	6073.58	6874.88	6991.03
1982	Jan-Mar	13041.90	13548.50	5773.76	5997.92	7268.12	7550.56
	Apr-Jun	13354.33	13724.65	5718.39	5872.63	7635.94	7852.02
	Jul-Sep	13887.32	12391.81	5839.71	5208.18	8047.62	7183.64
	Oct-Dec	14305.45	14924.04	5999.14	6252.27	8306.32	8671.79
1983	Jan-Mar	14569.19	15807.98	6185.10	6713.60	8384.09	9094.38
	Apr-Jun	15065.43	15663.90	6477.73	6741.08	8587.70	8922.82
	Jul-Sep	15684.10	13731.61	6833.26	5987.52	8850.83	7744.08
	Oct-Dec	16442.28	16557.52	7261.90	7315.80	9180.37	9241.72
1984	Jan-Mar	16562.63	17643.22	7418.72	7902.54	9143.91	9740.68
	Apr-Jun	16912.99	15894.36	7657.50	7195.04	9255.49	8699.32
	Jul-Sep	17612.92	16146.20	8035.25	7366.44	9577.67	8779.76
1985	Oct-Dec	18122.47	19527.23	8305.54	8952.98	9816.93	10574.24
	Jan-Mar	18603.90	21006.73	8540.29	9643.67	10063.61	11363.06
	Apr-Jun	19141.84	17351.50	8799.58	7975.76	10342.26	9375.74
	Jul-Sep	19835.13	17568.48	9128.88	8085.39	10706.25	9483.09
	Oct-Dec	20345.12	21999.29	9372.25	10136.18	10972.88	11863.11
1986	Jan-Mar	20794.85	22640.40	9586.08	10442.33	11208.77	12198.08
	Apr-Jun	21332.04	19741.52	9797.60	9069.15	11534.43	10672.37
	Jul-Sep	22200.55	20154.34	10117.29	9185.03	12083.26	10969.32
	Oct-Dec	23218.56	25009.73	10458.03	11262.49	12760.54	13747.23
1987	Jan-Mar	23759.22	26977.02	10537.80	11945.38	13221.43	15031.64
	Apr-Jun	24668.44	23017.86	10873.02	10135.20	13795.42	12882.66
	Jul-Sep	25636.04	21733.67	11328.47	9605.00	14307.57	12128.67
	Oct-Dec	25976.30	28311.45	11609.71	12663.42	14366.59	15648.03
1988	Jan-Mar	25823.04	32271.74	11776.90	14760.89	14046.13	17510.85
	Apr-Jun	26757.83	25559.45	12399.80	11871.08	14358.03	13688.38
	Jul-Sep	28676.88	23060.38	13439.75	10816.17	15237.13	12244.21
	Oct-Dec	30008.25	30374.43	14152.55	14320.86	15855.70	16053.57
1989	Jan-Mar	31388.35	35751.85	14825.92	16852.34	16562.42	18899.51
	Apr-Jun	32933.85	31208.76	15686.81	14850.98	17247.04	16357.79
	Jul-Sep	34075.52	28088.75	16474.31	13592.71	17601.21	14496.04
	Oct-Dec	34772.29	38120.64	17174.96	18865.98	17597.33	19254.66
1990	Jan-Mar	34791.68	40262.70	17675.68	20525.33	17116.00	19737.37
	Apr-Jun	35852.64	32828.87	18548.42	17007.84	17304.22	15821.04
	Jul-Sep	37966.88	32164.85	19801.78	16767.27	18165.10	15397.58
	Oct-Dec	39464.81	42819.58	20537.12	22262.56	18927.69	20557.02

Table A3: Interpolated Quarterly Investment using Denton Method (Continued)

(Million Rupees)

		Total Investment		Private Investment		Public Investment	
		Indicator		Indicator		Indicator	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
1991	Jan-Mar	40777.65	47075.89	20955.50	24146.75	19822.16	22929.14
	Apr-Jun	43123.27	38264.60	22044.19	19547.43	21079.08	18717.18
	Jul-Sep	45459.53	39817.51	23283.58	20399.75	22175.95	19417.77
	Oct-Dec	48285.55	52487.99	24942.73	27132.08	23342.82	25355.92
1992	Jan-Mar	51558.44	61396.92	27011.79	32224.35	24546.64	29172.56
	Apr-Jun	55217.77	49907.43	29159.20	26378.76	26058.57	23528.67
	Jul-Sep	58373.63	48882.93	30905.49	25877.84	27468.14	23005.09
	Oct-Dec	60210.16	65172.72	31801.51	34397.05	28408.65	30775.68
1993	Jan-Mar	61288.24	72169.76	32134.21	37759.54	29154.03	34410.23
	Apr-Jun	63250.01	57079.94	33082.01	29825.37	30168.00	27254.57
	Jul-Sep	65363.81	54831.58	34276.62	28769.69	31087.20	26061.88
	Oct-Dec	66741.94	72562.72	35275.17	38413.39	31466.77	34149.32
1994	Jan-Mar	67288.33	82734.87	36040.95	44442.44	31247.39	38292.43
	Apr-Jun	68991.82	64924.69	37152.77	34986.59	31839.05	29938.10
	Jul-Sep	70936.87	58563.59	38087.86	31399.51	32849.00	27164.08
	Oct-Dec	73660.98	74654.85	39088.42	39541.46	34572.56	35113.39
1995	Jan-Mar	75779.78	86126.85	39368.45	44651.34	36411.34	41475.51
	Apr-Jun	77163.10	74482.56	39514.09	38109.95	37649.01	36372.61
	Jul-Sep	80836.05	65955.85	41103.55	33551.32	39732.50	32404.53
	Oct-Dec	84066.07	91279.74	42769.92	46443.39	41296.15	44836.35
1996	Jan-Mar	87699.98	102671.30	44975.90	52622.43	42724.07	50048.88
	Apr-Jun	90755.49	84324.52	47084.12	43769.31	43671.38	40555.21
	Jul-Sep	93638.53	80357.77	49328.36	42390.68	44310.18	37967.10
	Oct-Dec	96330.00	101070.41	51737.63	54343.59	44592.37	46726.82
1997	Jan-Mar	98331.44	115208.62	54092.97	63368.39	44238.47	51840.23
	Apr-Jun	99190.95	88187.68	56323.51	50110.41	42867.44	38077.27
	Jul-Sep	99197.13	85459.19	58560.56	50509.66	40636.57	34949.54
	Oct-Dec	100139.48	108003.51	61845.96	66834.55	38293.52	41168.97
1998	Jan-Mar	100983.10	133322.03	65582.92	87164.35	35400.18	46157.68
	Apr-Jun	101712.48	92287.86	67380.98	61231.98	34331.50	31055.88
	Jul-Sep	101204.98	81656.03	66383.65	53405.41	34821.33	28250.62
	Oct-Dec	98944.45	95579.08	62117.45	59663.26	36827.00	35915.82
1999	Jan-Mar	94762.55	113953.50	54427.89	64326.23	40334.67	49627.27
	Apr-Jun	95873.63	84501.67	52562.74	46002.90	43310.90	38498.77
	Jul-Sep	102846.93	84749.44	56896.56	47095.10	45950.37	37654.34
	Oct-Dec	115873.89	126152.39	67656.82	74119.77	48217.06	52032.63
2000	Jan-Mar	133696.70	154488.54	84222.91	97958.52	49473.79	56530.02
	Apr-Jun	148618.19	139325.25	97004.91	91078.81	51613.28	48246.44
	Jul-Sep	159407.40	144200.53	105169.14	95052.30	54238.26	49148.22
	Oct-Dec	165687.71	169395.69	108352.04	110659.36	57335.67	58736.33

Table A3: Interpolated Quarterly Investment using Denton Method (Continued)

(Million Rupees)

		Total Investment		Private Investment		Public Investment	
		Indicator		Indicator		Indicator	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
2001	Jan-Mar	164526.23	204732.97	104557.57	129669.25	59968.65	75063.73
	Apr-Jun	164155.39	151418.93	103492.03	95399.38	60663.36	56019.55
	Jul-Sep	164908.23	144935.55	105387.93	92836.26	59520.30	52099.29
	Oct-Dec	165735.16	158237.54	109659.47	105192.11	56075.69	53045.43
2002	Jan-Mar	166020.36	206898.45	115951.07	145507.44	50069.29	61391.01
	Apr-Jun	168074.98	163335.82	121968.11	119009.12	46106.87	44326.69
	Jul-Sep	171894.80	142584.49	127719.50	106098.64	44175.30	36485.86
	Oct-Dec	174382.86	167554.24	130825.32	125848.80	43557.54	41705.44
2003	Jan-Mar	177808.60	219619.73	132917.04	164194.74	44891.56	55424.99
	Apr-Jun	180921.76	162910.81	134528.60	121051.16	46393.15	41859.65
	Jul-Sep	185130.60	167859.31	136698.25	123812.31	48432.36	44047.00
	Oct-Dec	192572.04	186043.15	140960.11	136045.79	51611.93	49997.36
2004	Jan-Mar	196127.40	215622.51	142063.98	156112.52	54063.42	59509.99
	Apr-Jun	204505.98	205906.08	147944.13	148981.91	56561.85	56924.17
	Jul-Sep	216027.00	193721.44	157490.50	141312.47	58536.50	52408.97
	Oct-Dec	228175.62	229585.97	169015.38	170107.10	59160.24	59478.88
2005	Jan-Mar	242145.66	262722.30	183489.84	199195.22	58655.83	63527.08
	Apr-Jun	262856.82	264740.80	202190.92	203750.17	60665.90	60990.64
	Jul-Sep	286350.31	269997.50	221996.75	209401.71	64353.56	60595.79
	Oct-Dec	315147.20	309039.40	244742.49	240072.91	70404.72	68966.49
2006	Jan-Mar	349154.04	379363.91	270273.14	293634.27	78880.90	85729.64
	Apr-Jun	379160.30	401208.03	291797.82	308624.57	87362.48	92583.46
	Jul-Sep	409312.59	386459.29	312403.43	294711.54	96909.16	91747.75
	Oct-Dec	428213.07	398808.78	323265.61	300769.62	104947.47	98039.15
2007	Jan-Mar	436185.33	455991.21	324686.83	339126.15	111498.50	116865.06
	Apr-Jun	446354.10	468239.12	328962.81	344861.20	117391.29	123377.92
	Jul-Sep	459953.02	444294.59	336972.17	325495.37	122980.85	118799.22
	Oct-Dec	472113.55	446081.09	345234.20	326373.28	126879.36	119707.81
2008	Jan-Mar	482692.71	546284.40	353828.28	400565.01	128864.44	145719.39
	Apr-Jun	513534.63	549563.14	377203.63	403707.51	136331.00	145855.63
	Jul-Sep	544396.37	492584.02	400509.03	362401.05	143887.34	130182.97
	Oct-Dec	554119.29	506311.44	408106.07	372973.43	146013.22	133338.01
2009	Jan-Mar	547996.08	556148.68	403816.97	410115.52	144179.10	146033.16
	Apr-Jun	553659.79	562025.90	407312.65	413640.62	146347.14	148385.28
	Jul-Sep	557641.25	538235.66	408548.74	394218.43	149092.52	144017.23
	Oct-Dec	551623.88	554510.76	401303.64	403007.43	150320.24	151503.33
2010	Jan-Mar	543696.28	607678.55	391366.21	436751.00	152330.08	170927.55
	Apr-Jun	539994.41	579675.94	385268.63	413121.90	154725.78	166554.04
	Jul-Sep	550361.05	506605.05	390131.39	359051.73	160229.66	147553.31
	Oct-Dec	562917.26	503009.46	397660.78	355502.37	165256.48	147507.10

Table A4: Interpolated Quarterly Govt. Expenditures using Denton Method

(Million Rupees)

		Total Exp.		**Development Exp.**		**Current Exp.**	
		Indicator		**Indicator**		**Indicator**	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
1979	Jan-Mar	731.59	794.43	3690.36	4103.77	11453.35	12708.05
	Apr-Jun	840.26	825.23	3712.86	3653.60	11716.92	11530.70
	Jul-Sep	1124.91	1007.63	3955.30	3487.69	12909.21	11410.99
	Oct-Dec	1438.24	1507.71	3799.47	3912.94	13065.51	13495.26
1980	Jan-Mar	1909.30	2194.14	3710.64	4172.99	13698.33	15469.06
	Apr-Jun	2236.40	2200.00	3678.76	3582.48	14352.87	14015.37
	Jul-Sep	2446.07	2125.79	3757.25	3268.31	15255.17	13286.09
	Oct-Dec	2328.23	2400.07	3677.35	3800.21	15281.63	15817.48
1981	Jan-Mar	1930.88	2172.41	3545.62	4032.06	14810.88	16861.71
	Apr-Jun	1694.11	1652.17	3555.37	3495.89	14781.72	14527.02
	Jul-Sep	1658.55	1437.79	3805.19	3307.93	15581.56	13523.78
	Oct-Dec	1703.45	1724.63	3988.82	4059.12	15923.84	16185.50
1982	Jan-Mar	1883.97	1951.65	4203.73	4368.56	16228.28	16840.32
	Apr-Jun	2061.39	2118.10	4438.47	4564.62	16846.43	17306.20
	Jul-Sep	2257.38	2018.02	4734.90	4227.32	17932.87	16014.31
	Oct-Dec	2419.27	2534.23	4980.90	5197.49	19076.42	19923.18
1983	Jan-Mar	2537.12	2766.15	5159.41	5592.28	20219.61	21980.33
	Apr-Jun	2728.51	2847.59	5324.06	5526.39	21555.15	22444.67
	Jul-Sep	2979.71	2613.21	5428.74	4746.36	22940.03	20098.59
	Oct-Dec	3300.66	3319.04	5465.78	5512.97	24394.21	24585.42
1984	Jan-Mar	3534.36	3754.87	5172.38	5525.82	24742.31	26370.09
	Apr-Jun	3628.36	3405.10	5068.39	4773.22	25376.50	23853.22
	Jul-Sep	3602.51	3314.59	5184.34	4745.29	26479.05	24273.75
1985	Oct-Dec	3327.76	3618.45	5367.88	5748.68	27235.15	29335.94
	Jan-Mar	2831.35	3181.00	5674.13	6378.99	27885.02	31437.74
	Apr-Jun	2680.37	2417.18	6063.93	5493.19	28956.59	26232.66
	Jul-Sep	2904.68	2557.92	6573.95	5836.01	30619.44	27129.20
	Oct-Dec	3474.59	3734.90	7095.99	7699.81	32370.95	35032.40
1986	Jan-Mar	4411.27	4850.61	7666.28	8376.11	34394.69	37538.25
	Apr-Jun	4812.56	4471.23	7927.61	7335.14	35905.08	33257.03
	Jul-Sep	4723.27	4296.83	7962.83	7227.32	37304.05	33866.40
	Oct-Dec	4067.90	4396.34	7681.28	8299.42	38249.18	41191.32
1987	Jan-Mar	2727.06	2962.66	6871.79	7787.75	37691.35	42609.02
	Apr-Jun	2174.85	1952.80	6407.92	5960.22	38654.01	35971.78
	Jul-Sep	2389.89	2024.63	6181.19	5217.71	40678.45	34501.36
	Oct-Dec	3377.20	3728.91	6045.10	6540.32	42765.20	46706.84
1988	Jan-Mar	5161.32	6738.23	6053.60	7558.34	45129.87	56802.18
	Apr-Jun	6413.81	6225.95	6265.18	5985.82	48283.37	46240.97
	Jul-Sep	7094.63	5669.21	6648.45	5344.83	52011.24	41763.29
	Oct-Dec	6680.24	6716.60	6829.76	6908.01	53262.52	53880.56
1989	Jan-Mar	5289.11	5891.67	6958.89	7895.33	53137.41	60454.54
	Apr-Jun	4427.28	4122.91	7249.03	6855.61	53685.99	50817.45
	Jul-Sep	4017.87	3307.36	7580.98	6255.64	53947.46	44418.43
	Oct-Dec	4095.74	4508.05	7954.10	8736.42	53895.15	58975.58
1990	Jan-Mar	4662.13	5527.26	8319.59	9665.83	53205.40	61509.81
	Apr-Jun	5046.18	4675.19	8906.19	8176.99	54147.92	49568.12
	Jul-Sep	5225.11	4406.75	9735.56	8252.18	56699.79	48037.08
	Oct-Dec	4905.58	5229.80	10378.67	11245.00	58365.89	63303.99

Table A4: Interpolated Quarterly Govt. Expenditures using Denton Method (Continued)

(Million Rupees)

		Total Exp.		**Development Exp.**		**Current Exp.**	
		Indicator		**Indicator**		**Indicator**	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
2001	Jan-Mar	2254.93	1768.33	16931.02	21075.07	169989.45	210209.90
	Apr-Jun	1458.53	1377.72	16307.00	14988.33	167962.01	154917.77
	Jul-Sep	7259.00	7192.17	15846.03	13833.63	176190.33	155834.89
	Oct-Dec	19876.54	20510.78	15442.95	14629.98	193915.21	187094.44
2002	Jan-Mar	39379.88	51763.54	15044.71	18660.84	220616.31	278549.01
	Apr-Jun	50933.04	50090.01	15020.26	14596.83	238509.43	232641.46
	Jul-Sep	54370.15	44748.94	15374.58	12783.43	247375.74	204786.76
	Oct-Dec	48318.93	46399.51	15840.45	15238.90	242233.52	232757.78
2003	Jan-Mar	33367.66	40545.89	16623.31	20537.60	226171.06	278463.93
	Apr-Jun	22445.19	19618.07	16930.86	15207.66	214501.92	192277.51
	Jul-Sep	15726.06	13213.11	16887.07	15278.27	208882.02	187910.78
	Oct-Dec	13368.09	11529.93	16649.76	16067.48	211626.01	202528.78
2004	Jan-Mar	15147.06	16002.76	15553.61	17057.94	215192.07	235615.98
	Apr-Jun	16403.51	16490.87	15006.45	15060.25	221539.62	222855.47
	Jul-Sep	16944.12	15463.23	14860.54	13277.85	228537.36	205064.49
	Oct-Dec	16469.31	17007.15	14963.40	14987.96	233243.95	234977.06
2005	Jan-Mar	14995.56	16418.11	15427.30	16696.57	236771.46	256635.63
	Apr-Jun	13757.93	13765.81	16221.49	16314.61	244896.14	246017.65
	Jul-Sep	12528.44	11594.54	17091.67	16099.62	253726.04	238500.69
	Oct-Dec	11457.07	10960.55	18192.55	17822.19	265612.36	259852.04
2006	Jan-Mar	10544.89	11228.63	19515.36	21171.10	280419.11	304511.74
	Apr-Jun	9796.18	10229.01	20767.47	21945.07	293401.93	310309.10
	Jul-Sep	9316.29	8763.45	22182.36	20933.08	307713.27	289940.92
	Oct-Dec	8861.65	8297.92	23155.81	21571.76	314829.70	291602.24
2007	Jan-Mar	8493.57	9005.19	23719.19	24823.66	315356.76	326108.93
	Apr-Jun	8151.50	8628.50	24300.58	25510.48	325480.60	339352.16
	Jul-Sep	7837.54	7505.97	24960.94	24094.95	346769.45	336972.83
	Oct-Dec	7449.39	6792.34	25421.29	23972.92	376875.20	362048.08
2008	Jan-Mar	6974.88	7367.48	25655.53	28982.39	417199.10	480913.99
	Apr-Jun	7909.45	8370.28	27012.08	28881.84	468520.17	505915.43
	Jul-Sep	10301.27	9831.25	28425.27	25720.63	511677.00	461273.60
	Oct-Dec	14027.41	13643.99	28822.13	26330.15	523294.74	472587.98
2009	Jan-Mar	19063.68	20000.24	28504.11	28866.60	506332.26	508047.12
	Apr-Jun	23401.59	23931.94	29006.13	29404.34	512240.57	517686.05
	Jul-Sep	26600.58	25413.74	29656.72	28648.38	529864.05	513800.65
	Oct-Dec	28100.15	27820.08	30043.04	30290.69	553019.12	561922.18
2010	Jan-Mar	28127.98	31275.89	30626.90	34391.52	591197.59	668998.32
	Apr-Jun	28291.82	30398.53	31254.42	33662.49	625143.50	676219.13
	Jul-Sep	29097.21	26887.64	32471.45	29906.35	665167.92	612638.90
	Oct-Dec	29902.99	26857.94	33546.23	29938.64	695510.99	619163.65

Table A5: Interpolated Quarterly GDP using Chow-Lin Method

(Million Rupees)

		GDP (1960 Prices)		GDP (1981 Prices)		GDP (2000 Prices)	
		Indicator		Indicator		Indicator	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
1971	Jan-Mar	7979.92	8786.35	36480.60	40124.80	200467.10	219525.50
	Apr-Jun	8038.99	8318.92	36706.90	37971.80	201520.90	208163.60
	Jul-Sep	8123.25	7364.24	37002.00	33572.10	202793.30	184852.90
	Oct-Dec	8193.84	7866.49	37190.50	35711.30	203294.70	195534.00
1972	Jan-Mar	8262.43	8809.16	37325.00	39795.60	203321.80	216186.60
	Apr-Jun	8326.42	8049.18	37492.50	36239.70	203723.90	197143.00
	Jul-Sep	8414.26	7797.41	37821.40	35034.00	205224.80	190645.40
	Oct-Dec	8491.89	8839.25	38158.10	39727.70	206957.60	215253.00
1973	Jan-Mar	8623.40	9734.38	38791.80	43812.10	210554.40	236931.00
	Apr-Jun	8752.71	8618.04	39402.40	38793.70	213960.50	210961.90
	Jul-Sep	9081.45	8077.60	40900.80	36364.60	222312.70	198485.70
	Oct-Dec	9315.44	9342.99	41958.00	42082.70	228116.40	228565.40
1974	Jan-Mar	9384.31	10003.00	42256.20	45052.20	229579.40	244225.40
	Apr-Jun	9519.08	9373.60	42855.60	42198.10	232781.90	229418.90
	Jul-Sep	9726.62	9150.27	43787.20	41182.80	237899.10	224213.40
	Oct-Dec	9808.99	9912.08	44157.00	44622.90	239888.70	242291.30
1975	Jan-Mar	9846.27	10297.70	44326.70	46366.50	240790.30	251484.00
	Apr-Jun	9957.12	9851.52	44827.90	44350.80	243552.30	241020.80
	Jul-Sep	10016.00	9559.41	45093.50	43030.30	244976.00	234196.10
	Oct-Dec	10110.60	10221.40	45519.90	46020.40	247297.40	249915.10
1976	Jan-Mar	10182.50	10971.10	45842.70	49406.10	249024.50	267704.90
	Apr-Jun	10270.30	10101.00	46237.90	45472.80	251178.30	247207.10
	Jul-Sep	10342.50	9494.29	46562.90	42729.70	252954.30	232917.40
	Oct-Dec	10433.60	10662.60	46973.60	48008.40	255231.00	260558.60
1977	Jan-Mar	10441.70	10856.50	47009.70	48884.40	255413.80	265162.10
	Apr-Jun	10457.00	10352.60	47077.40	46605.70	255717.40	253324.70
	Jul-Sep	10659.30	9950.81	47989.50	44787.80	260725.90	243952.60
	Oct-Dec	10843.00	11241.10	48816.30	50615.10	265196.00	274613.60
1978	Jan-Mar	11079.50	12019.10	49880.80	54126.90	270949.80	293221.70
	Apr-Jun	11295.70	11307.80	50854.10	50908.40	276226.10	276601.00
	Jul-Sep	11607.80	10509.70	52260.30	47298.40	283979.80	257896.30
	Oct-Dec	11696.00	11842.40	52655.90	53317.40	286071.20	289508.00
1979	Jan-Mar	11741.60	12344.40	52858.70	55582.50	287111.80	301454.40
	Apr-Jun	11858.40	11718.60	53384.50	52752.80	289939.90	286792.10
	Jul-Sep	12273.60	11602.20	55259.50	52225.70	300343.70	284203.10
	Oct-Dec	12330.40	12538.80	55516.30	56457.90	301588.70	306534.40
1980	Jan-Mar	12529.20	13321.70	56415.70	59996.70	306423.80	325272.60
	Apr-Jun	12773.70	12574.80	57514.90	56615.90	312402.80	307810.80
	Jul-Sep	13139.50	12265.10	59155.80	55204.70	321453.50	300631.10
	Oct-Dec	13293.50	13574.40	59833.60	61102.70	325089.90	331655.60

Table A5: Interpolated Quarterly GDP using Chow-Lin Method (Continued)

(Million Rupees)

		GDP (1960 Prices)		GDP (1981 Prices)		GDP (2000 Prices)	
		Indicator		Indicator		Indicator	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
1981	Jan-Mar	13355.60	14335.10	60089.40	64515.50	326363.10	349668.30
	Apr-Jun	13535.70	13364.60	60906.30	60133.10	330780.10	326938.90
	Jul-Sep	13963.60	12974.50	62870.10	58400.40	341644.30	318085.50
	Oct-Dec	14193.10	14373.80	63965.30	64781.90	347588.50	351683.30
1982	Jan-Mar	14362.30	14677.10	64815.60	66237.90	352131.40	359545.20
	Apr-Jun	14583.10	14792.20	65872.30	66817.30	357833.60	362827.90
	Jul-Sep	14896.80	14001.70	67321.90	63277.20	365747.40	344572.90
	Oct-Dec	15169.80	15541.00	68561.20	70238.60	372470.60	381237.00
1983	Jan-Mar	15389.50	16077.90	69532.90	72643.90	377680.50	394080.20
	Apr-Jun	15640.60	15957.10	70653.00	72083.10	383780.40	391361.00
	Jul-Sep	15878.90	14746.40	71721.60	66603.80	389643.70	362868.90
	Oct-Dec	16109.00	16236.60	72759.50	73336.20	395387.40	398181.90
1984	Jan-Mar	16049.60	16683.80	72495.60	75361.50	393843.00	408827.60
	Apr-Jun	16161.90	15523.50	73006.30	70121.40	396576.50	381570.80
	Jul-Sep	16484.50	15616.80	74465.90	70544.70	404570.00	384017.40
1985	Oct-Dec	16826.00	17698.00	76009.20	79949.40	412945.50	433519.20
	Jan-Mar	17244.50	18721.40	77898.90	84572.70	423183.70	458106.90
	Apr-Jun	17635.30	16504.60	79663.60	74553.90	432763.10	406083.50
	Jul-Sep	18030.00	16660.70	81446.00	75258.20	442489.00	410087.30
	Oct-Dec	18317.10	19340.30	82742.50	87366.30	449520.20	473678.30
1986	Jan-Mar	18539.00	19612.10	83744.60	88594.10	454937.20	480329.10
	Apr-Jun	18765.00	17812.50	84765.50	80461.00	460458.00	438033.10
	Jul-Sep	19068.00	17913.30	86134.30	80916.30	467937.70	440649.20
	Oct-Dec	19388.00	20422.10	87579.60	92252.70	475846.10	500167.50
1987	Jan-Mar	19543.70	21242.50	88283.00	95959.90	479568.10	519794.30
	Apr-Jun	19859.40	18946.10	89709.60	85582.30	487345.80	465790.90
	Jul-Sep	20244.40	18218.40	91448.80	82293.50	496864.90	448877.40
	Oct-Dec	20514.40	21754.90	92668.60	98274.30	503433.30	532749.40
1988	Jan-Mar	20710.30	23966.40	93553.60	108267.00	508091.30	585332.30
	Apr-Jun	21098.00	20368.40	95305.00	92007.80	517663.60	500608.00
	Jul-Sep	21635.20	18865.30	97731.40	85214.90	531072.00	465357.40
	Oct-Dec	21877.50	22120.90	98826.00	99926.00	536998.00	542527.30
1989	Jan-Mar	22003.30	24062.30	99394.00	108698.00	539983.90	588614.00
	Apr-Jun	22251.80	21455.30	100516.00	96916.80	546087.60	527226.20
	Jul-Sep	22481.00	19778.00	101551.00	89337.10	551696.70	487816.40
	Oct-Dec	22688.00	24128.40	102487.00	108996.00	556734.80	590846.40
1990	Jan-Mar	22822.10	25058.70	103093.00	113200.00	559912.20	613067.20
	Apr-Jun	23141.70	21765.60	104537.00	98318.10	567811.10	535489.60
	Jul-Sep	23644.40	21315.70	106808.00	96284.40	580370.40	525097.80
	Oct-Dec	23918.70	25387.00	108047.00	114682.00	587108.30	621547.30

Table A5: Interpolated Quarterly GDP using Chow-Lin Method (Continued)

(Million Rupees)

		GDP (1960 Prices)		GDP (1981 Prices)		GDP (2000 Prices)	
		Indicator		Indicator		Indicator	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
1991	Jan-Mar	24066.50	26606.40	108714.00	120192.00	590619.50	650608.60
	Apr-Jun	24462.20	22625.30	110502.00	102201.00	600363.00	556861.80
	Jul-Sep	24854.00	22743.10	112271.00	102733.00	609919.70	560058.70
	Oct-Dec	25351.30	26759.20	114518.00	120880.00	622080.80	655454.00
1992	Jan-Mar	25938.70	29084.20	117171.00	131385.00	636450.90	710972.60
	Apr-Jun	26516.50	24788.30	119782.00	111972.00	650731.30	609890.80
	Jul-Sep	26911.60	24024.90	121566.00	108522.00	660506.20	592132.20
	Oct-Dec	26984.20	28453.60	121894.00	128534.00	662220.40	696913.50
1993	Jan-Mar	26853.00	29979.80	121301.00	135431.00	658893.60	732959.60
	Apr-Jun	27004.90	25199.40	121987.00	113828.00	662680.60	620079.60
	Jul-Sep	27307.70	24363.50	123355.00	110051.00	670209.20	600506.40
	Oct-Dec	27601.40	29224.30	124682.00	132015.00	677406.70	715644.30
1994	Jan-Mar	27871.60	31972.50	125902.00	144434.00	683905.80	780961.70
	Apr-Jun	28262.30	27128.80	127667.00	122545.00	693527.50	666826.10
	Jul-Sep	28597.00	25332.70	129179.00	114428.00	701776.10	624653.40
	Oct-Dec	28975.10	29272.00	130887.00	132228.00	711182.70	717950.90
1995	Jan-Mar	29123.10	31850.80	131555.00	143882.00	714782.20	779048.40
	Apr-Jun	29196.80	28494.90	131888.00	128716.00	716377.10	700026.50
	Jul-Sep	29771.80	26117.70	134486.00	117973.00	730629.70	644248.10
	Oct-Dec	30313.20	31941.60	136932.00	144290.00	743915.80	782382.00
1996	Jan-Mar	30977.20	34217.30	139931.00	154573.00	760212.40	836789.10
	Apr-Jun	31438.30	30000.90	142014.00	135519.00	771489.10	737605.80
	Jul-Sep	31781.80	29020.10	143566.00	131086.00	779918.60	714702.40
	Oct-Dec	32020.80	32979.70	144646.00	148979.00	785835.90	808358.70
1997	Jan-Mar	32089.20	35410.30	144955.00	159963.00	787554.30	865703.90
	Apr-Jun	32069.00	29945.40	144864.00	135267.00	787003.00	736637.90
	Jul-Sep	31998.80	29325.60	144547.00	132466.00	785163.10	722220.10
	Oct-Dec	32209.90	33685.70	145500.00	152169.00	790475.60	825634.10
1998	Jan-Mar	32502.60	38831.60	146822.00	175422.00	797853.20	947776.20
	Apr-Jun	32992.50	31100.60	149035.00	140486.00	809947.30	765330.50
	Jul-Sep	33480.70	29489.80	151241.00	133206.00	821692.90	727205.20
	Oct-Dec	33876.20	33430.00	153027.00	151011.00	830767.60	819949.20
1999	Jan-Mar	34141.90	39276.00	154227.00	177427.00	836228.40	957423.10
	Apr-Jun	34397.50	31848.70	155381.00	143863.00	842697.10	782516.20
	Jul-Sep	34735.40	30595.70	156907.00	138201.00	852522.10	754780.80
	Oct-Dec	35136.20	36690.60	158718.00	165742.00	865216.40	901943.90
2000	Jan-Mar	35334.90	38233.20	159616.00	172713.00	874024.00	942807.60
	Apr-Jun	35737.30	34321.80	161434.00	155037.00	886056.10	852765.40
	Jul-Sep	36159.50	34145.20	163342.00	154239.00	896624.70	848950.00
	Oct-Dec	36585.20	37116.80	165264.00	167667.00	905315.20	917497.00

Table A5: Interpolated Quarterly GDP using Chow-Lin Method (Continued)

(Million Rupees)

		GDP (1960 Prices)		GDP (1981 Prices)		GDP (2000 Prices)	
		Indicator		Indicator		Indicator	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
2001	Jan-Mar	36661.00	42364.30	165606.00	191379.00	903125.50	1037798.00
	Apr-Jun	36851.90	35059.40	166468.00	158368.00	904098.20	861804.60
	Jul-Sep	37204.00	34332.50	168059.00	155083.00	909408.60	841570.00
	Oct-Dec	37576.20	36536.90	169740.00	165043.00	915458.80	890918.00
2002	Jan-Mar	37883.90	43876.40	171130.00	198209.00	920094.70	1061928.00
	Apr-Jun	38428.00	37749.70	173588.00	170523.00	929556.70	913669.80
	Jul-Sep	39202.70	34909.10	177087.00	157685.00	943695.50	841997.60
	Oct-Dec	39786.50	38765.80	179724.00	175112.00	951771.00	927522.40
2003	Jan-Mar	40485.60	46886.90	182883.00	211810.00	961586.20	1112750.00
	Apr-Jun	41164.70	38395.90	185951.00	173439.00	970583.00	905288.70
	Jul-Sep	42004.00	39313.50	189742.00	177584.00	983346.50	920009.10
	Oct-Dec	43266.80	42324.80	195446.00	191190.00	1006588.00	984056.00
2004	Jan-Mar	44055.60	47141.20	199009.00	212953.00	1017441.00	1090614.00
	Apr-Jun	45064.50	45252.10	203567.00	204414.00	1039628.00	1044191.00
	Jul-Sep	46054.10	42563.30	208037.00	192262.00	1067050.00	984348.40
	Oct-Dec	46700.80	46918.40	210958.00	211942.00	1091463.00	1096429.00
2005	Jan-Mar	47136.70	50153.50	212927.00	226559.00	1116231.00	1187516.00
	Apr-Jun	47863.50	48093.40	216210.00	217250.00	1143081.00	1148286.00
	Jul-Sep	48416.60	46111.50	218709.00	208292.00	1160177.00	1105707.00
	Oct-Dec	49040.20	48098.60	221526.00	217271.00	1173740.00	1151720.00
2006	Jan-Mar	49699.90	52900.60	224506.00	238969.00	1182895.00	1259056.00
	Apr-Jun	50592.80	52720.50	228540.00	238154.00	1198218.00	1249022.00
	Jul-Sep	52043.80	49637.80	235094.00	224222.00	1227986.00	1170754.00
	Oct-Dec	53235.60	50313.10	240478.00	227272.00	1251377.00	1181643.00
2007	Jan-Mar	54256.20	56316.20	245088.00	254397.00	1270631.00	1318781.00
	Apr-Jun	54993.00	57165.70	248416.00	258235.00	1289105.00	1340199.00
	Jul-Sep	55540.10	53964.50	250888.00	243768.00	1309195.00	1271956.00
	Oct-Dec	55578.70	52921.70	251062.00	239054.00	1322779.00	1260775.00
2008	Jan-Mar	55132.80	60334.90	249048.00	272554.00	1330473.00	1455472.00
	Apr-Jun	56473.80	59301.70	255105.00	267884.00	1376625.00	1443855.00
	Jul-Sep	58162.20	53846.80	262732.00	243233.00	1424572.00	1321029.00
	Oct-Dec	58604.10	54889.60	264729.00	247943.00	1433704.00	1345020.00
2009	Jan-Mar	58135.10	59145.10	262610.00	267172.00	1412573.00	1438209.00
	Apr-Jun	58974.80	60015.30	266402.00	271103.00	1427278.00	1453170.00
	Jul-Sep	60157.30	58721.00	271744.00	265254.00	1453217.00	1418757.00
	Oct-Dec	61057.80	60443.60	275812.00	273038.00	1474468.00	1457400.00

Table A6: Interpolated Quarterly GDP using Chow-Lin Method

(Million Rupees)

		GDP (Current Prices)	
		Indicator	
Year	**Quarter**	**CPI**	**IPI**
1973	Jan-Mar	6214.50	60685.80
	Apr-Jun	8661.50	4530.60
	Jul-Sep	23568.60	-26250.50
	Oct-Dec	29047.40	28526.00
1974	Jan-Mar	19862.10	50874.00
	Apr-Jun	18321.90	12252.00
	Jul-Sep	24937.00	-4368.80
	Oct-Dec	24981.00	29344.70
1975	Jan-Mar	24410.00	46777.20
	Apr-Jun	28619.60	22947.60
	Jul-Sep	28268.20	6093.70
	Oct-Dec	29885.30	35364.50
1976	Jan-Mar	29113.30	68364.10
	Apr-Jun	30878.90	23000.50
	Jul-Sep	32832.50	-8584.40
	Oct-Dec	37539.30	47583.80
1977	Jan-Mar	37421.40	56967.80
	Apr-Jun	33557.20	29469.50
	Jul-Sep	39333.20	4239.00
	Oct-Dec	39436.20	59071.70
1978	Jan-Mar	39186.40	86106.80
	Apr-Jun	39971.30	41806.20
	Jul-Sep	50419.20	-5194.20
	Oct-Dec	46757.20	53615.20
1979	Jan-Mar	42452.30	73315.80
	Apr-Jun	41367.20	36660.00
	Jul-Sep	60404.40	23750.20
	Oct-Dec	50691.10	61189.00
1980	Jan-Mar	49458.50	89930.10
	Apr-Jun	52827.00	44588.70
	Jul-Sep	66424.90	21419.00
	Oct-Dec	65468.60	78241.20

Table A6: Interpolated Quarterly GDP using Chow-Lin Method (Continued)

(Million Rupees)

		GDP (Current Prices)	
		Indicator	
Year	**Quarter**	**CPI**	**IPI**
1981	Jan-Mar	58867.600	108996.300
	Apr-Jun	59961.100	54361.300
	Jul-Sep	78395.200	27438.300
	Oct-Dec	80972.100	87400.100
1982	Jan-Mar	77965.900	93043.500
	Apr-Jun	77758.200	88714.400
	Jul-Sep	83420.200	39293.800
	Oct-Dec	85014.700	103107.300
1983	Jan-Mar	81597.100	117098.700
	Apr-Jun	85312.700	102202.700
	Jul-Sep	92869.200	37274.300
	Oct-Dec	104607.900	107811.400
1984	Jan-Mar	99592.900	130604.600
	Apr-Jun	100007.600	69867.900
	Jul-Sep	108719.700	65599.400
1985	Oct-Dec	111481.800	153730.000
	Jan-Mar	112616.000	185224.300
	Apr-Jun	115129.200	60344.800
	Jul-Sep	121370.800	53756.700
	Oct-Dec	123041.000	172831.200
1986	Jan-Mar	123293.600	176261.500
	Apr-Jun	123810.800	78354.600
	Jul-Sep	130009.200	73472.600
	Oct-Dec	137418.400	186443.300
1987	Jan-Mar	132558.200	216825.100
	Apr-Jun	138913.500	94594.500
	Jul-Sep	149723.500	49029.400
	Oct-Dec	151283.800	212029.900
1988	Jan-Mar	146630.600	310094.700
	Apr-Jun	158221.700	125072.700
	Jul-Sep	182906.800	43748.900
	Oct-Dec	187630.000	196472.700
1989	Jan-Mar	185654.500	286076.000
	Apr-Jun	191819.700	152288.500
	Jul-Sep	195575.100	63179.600
	Oct-Dec	196695.700	268200.900
1990	Jan-Mar	191413.800	305047.800
	Apr-Jun	201463.000	136833.800
	Jul-Sep	226663.400	109349.200
	Oct-Dec	236402.900	304712.200

Table A6: Interpolated Quarterly GDP using Chow-Lin Method (Continued)

(Million Rupees)

		GDP (Current Prices)	
		Indicator	
Year	**Quarter**	**CPI**	**IPI**
1991	Jan-Mar	238257.60	362127.80
	Apr-Jun	252440.50	161260.80
	Jul-Sep	260204.30	157173.50
	Oct-Dec	269697.60	340037.90
1992	Jan-Mar	279763.30	436351.20
	Apr-Jun	299220.50	214620.50
	Jul-Sep	315170.90	171678.50
	Oct-Dec	317230.30	388734.80
1993	Jan-Mar	314217.30	469696.60
	Apr-Jun	326616.70	239145.00
	Jul-Sep	344580.70	198696.50
	Oct-Dec	356214.30	434090.90
1994	Jan-Mar	360444.30	563199.90
	Apr-Jun	379780.90	325469.30
	Jul-Sep	401094.90	241531.20
	Oct-Dec	431777.00	442896.60
1995	Jan-Mar	451487.20	582355.30
	Apr-Jun	453834.40	422744.60
	Jul-Sep	481638.90	302357.40
	Oct-Dec	495110.50	574613.80
1996	Jan-Mar	505861.50	664577.80
	Apr-Jun	517199.50	448002.60
	Jul-Sep	535467.90	400902.70
	Oct-Dec	561644.30	606689.90
1997	Jan-Mar	590803.40	748799.90
	Apr-Jun	605365.20	498921.30
	Jul-Sep	608195.90	480490.30
	Oct-Dec	623947.50	700100.50
1998	Jan-Mar	637763.40	952528.40
	Apr-Jun	662545.40	571199.70
	Jul-Sep	683500.90	485713.50
	Oct-Dec	693846.20	668214.50
1999	Jan-Mar	690825.60	940324.40
	Apr-Jun	704524.00	580478.20
	Jul-Sep	741799.40	540316.80
	Oct-Dec	801230.00	877259.60
2000	Jan-Mar	863088.00	1009005.00
	Apr-Jun	927535.40	860458.30
	Jul-Sep	980884.90	881262.60
	Oct-Dec	1021928.00	1042711.00

Table A6: Interpolated Quarterly GDP using Chow-Lin Method (Continued)

(Million Rupees)

		GDP (Current Prices)	
		Indicator	
Year	**Quarter**	**CPI**	**IPI**
2001	Jan-Mar	1024375.00	1302129.00
	Apr-Jun	1031547.00	944709.30
	Jul-Sep	1046876.00	906567.10
	Oct-Dec	1059856.00	1009249.00
2002	Jan-Mar	1064194.00	1360600.00
	Apr-Jun	1083733.00	1052483.00
	Jul-Sep	1118036.00	904633.90
	Oct-Dec	1135735.00	1083982.00
2003	Jan-Mar	1159620.00	1471467.00
	Apr-Jun	1180294.00	1046643.00
	Jul-Sep	1211148.00	1082786.00
	Oct-Dec	1271781.00	1221946.00
2004	Jan-Mar	1295410.00	1450012.00
	Apr-Jun	1349498.00	1360517.00
	Jul-Sep	1416230.00	1242466.00
	Oct-Dec	1471526.00	1479668.00
2005	Jan-Mar	1525215.00	1672633.00
	Apr-Jun	1598589.00	1606534.00
	Jul-Sep	1657093.00	1544296.00
	Oct-Dec	1718885.00	1676319.00
2006	Jan-Mar	1781418.00	1946134.00
	Apr-Jun	1852595.00	1964632.00
	Jul-Sep	1956592.00	1833568.00
	Oct-Dec	2032599.00	1878871.00
2007	Jan-Mar	2087161.00	2177352.00
	Apr-Jun	2140996.00	2241136.00
	Jul-Sep	2201100.00	2124184.00
	Oct-Dec	2243751.00	2130335.00
2008	Jan-Mar	2270756.00	2567758.00
	Apr-Jun	2452220.00	2607691.00
	Jul-Sep	2681078.00	2447084.00
	Oct-Dec	2838744.00	2620267.00
2009	Jan-Mar	2950203.00	2966517.00
	Apr-Jun	3122022.00	3143083.00
	Jul-Sep	3282366.00	3209733.00
	Oct-Dec	3384745.00	3420004.00
2010	Jan-Mar	3480901.00	3768139.00
	Apr-Jun	3577548.00	3772028.00
	Jul-Sep	3737105.00	3559003.00
	Oct-Dec	3872874.00	3569258.00

Table A7: Interpolated Quarterly Investment using Chow-Lin Method

(Million Rupees)

		Total Investment		**Private Investment**		**Public Investment**	
		Indicator		**Indicator**		**Indicator**	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
1971	Jan-Mar	1847.52	9651.17	937.14	6478.27	983.80	3296.77
	Apr-Jun	1627.69	4363.77	782.82	2724.61	848.14	1653.91
	Jul-Sep	1746.31	-5641.23	872.07	-4374.20	839.37	-1340.47
	Oct-Dec	1823.47	-1328.71	938.98	-1297.68	842.69	-96.21
1972	Jan-Mar	1973.04	7348.64	1063.25	4884.86	892.36	2463.88
	Apr-Jun	1847.06	-866.06	987.71	-937.77	858.63	60.47
	Jul-Sep	1723.25	-4326.80	906.74	-3390.57	825.06	-949.52
	Oct-Dec	1268.65	4656.23	587.30	2988.47	690.95	1692.16
1973	Jan-Mar	1109.34	11980.90	467.61	8182.70	644.59	3843.96
	Apr-Jun	865.69	-454.27	254.76	-692.85	609.48	229.68
	Jul-Sep	2508.97	-7316.54	1328.58	-5644.59	1179.47	-1711.22
	Oct-Dec	3161.99	3435.95	1675.06	1880.73	1486.47	1557.58
1974	Jan-Mar	2136.27	8195.63	812.25	5114.83	1322.46	3103.12
	Apr-Jun	2099.77	675.14	643.08	-372.90	1455.78	1040.78
	Jul-Sep	3119.21	-2524.03	1214.19	-2790.54	1906.19	246.09
	Oct-Dec	3258.75	4267.26	1170.48	1888.61	2089.57	2384.01
1975	Jan-Mar	3300.87	7720.10	1059.62	4197.14	2241.49	3540.29
	Apr-Jun	4024.46	2990.85	1395.92	663.77	2628.91	2323.78
	Jul-Sep	4201.53	-268.68	1319.77	-1855.89	2881.47	1569.10
	Oct-Dec	4690.15	5774.72	1431.69	2201.99	3258.13	3576.82
1976	Jan-Mar	4917.57	12638.20	1330.71	6812.10	3586.76	5855.89
	Apr-Jun	5408.23	3750.49	1469.24	290.17	3939.06	3453.40
	Jul-Sep	5853.31	-2451.96	1631.04	-4268.54	4222.43	1783.78
	Oct-Dec	6589.89	8832.28	2052.01	3649.27	4538.75	5193.93
1977	Jan-Mar	6621.86	10683.90	2034.85	4923.06	4587.49	5778.40
	Apr-Jun	6125.59	5103.13	1640.28	910.00	4484.96	4187.81
	Jul-Sep	6860.32	-76.61	2099.70	-2825.86	4761.27	2722.63
	Oct-Dec	6813.23	10710.60	2004.17	4771.80	4809.28	5954.16
1978	Jan-Mar	6683.43	15883.00	1843.03	8373.69	4839.74	7544.33
	Apr-Jun	6713.03	6830.38	1813.50	1891.91	4898.63	4936.97
	Jul-Sep	8035.97	-2714.16	2709.29	-4919.00	5327.80	2165.06
	Oct-Dec	7527.58	8960.79	2343.18	3362.41	5184.83	5604.64
1979	Jan-Mar	6957.68	12858.80	1954.02	6140.21	5003.06	6740.11
	Apr-Jun	6860.97	5491.73	1819.35	838.38	5040.71	4644.91
	Jul-Sep	9458.81	2886.99	3494.03	-1158.85	5967.33	4025.86
	Oct-Dec	8327.54	10367.40	2481.59	3929.27	5845.90	6446.12
1980	Jan-Mar	8360.34	16118.70	2207.06	7711.00	6152.03	8436.06
	Apr-Jun	8996.77	7048.55	2530.91	1141.17	6464.94	5897.61
	Jul-Sep	10976.40	2416.43	3970.73	-2100.53	7007.45	4486.67
	Oct-Dec	11041.50	13791.40	4246.30	6203.36	6796.59	7600.65

Table A7: Interpolated Quarterly Investment using Chow-Lin Method (Continued)

(Million Rupees)

		Total Investment		Private Investment		Public Investment	
		Indicator		Indicator		Indicator	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
1981	Jan-Mar	10363.00	19952.30	4177.21	10979.70	6184.17	9007.27
	Apr-Jun	10646.50	8970.43	4590.07	3388.60	6054.60	5570.91
	Jul-Sep	13159.60	3476.15	6372.25	-495.71	6789.00	3937.34
	Oct-Dec	13538.90	15309.10	6469.47	7736.42	7071.23	7583.48
1982	Jan-Mar	13134.70	16216.40	5826.79	8017.07	7308.65	8212.09
	Apr-Jun	13147.20	15194.50	5550.57	7001.94	7596.38	8199.61
	Jul-Sep	13980.00	5216.56	5923.23	-300.14	8056.74	5482.43
	Oct-Dec	14327.10	17961.50	6030.40	8612.14	8296.24	9363.87
1983	Jan-Mar	14064.00	20803.90	5785.04	10565.10	8277.51	10262.60
	Apr-Jun	14677.90	17776.10	6166.75	8361.82	8510.26	9424.42
	Jul-Sep	15736.00	4647.43	6872.53	-1002.92	8863.80	5606.70
	Oct-Dec	17283.10	18533.60	7933.68	8833.97	9351.43	9709.28
1984	Jan-Mar	16567.20	22776.60	7424.02	11834.70	9143.18	10966.40
	Apr-Jun	16611.60	10360.60	7417.84	2973.47	9193.10	7360.55
	Jul-Sep	17793.10	9297.42	8178.88	2147.03	9614.65	7117.82
1985	Oct-Dec	18239.10	26776.30	8396.27	14461.80	9843.07	12349.20
	Jan-Mar	18517.30	32977.10	8467.54	18736.90	10049.60	14297.00
	Apr-Jun	18999.90	7928.87	8683.09	817.23	10316.50	7066.82
	Jul-Sep	19995.50	6588.66	9258.93	-261.46	10736.90	6797.89
	Oct-Dec	20413.20	30431.40	9431.44	16548.40	10982.00	13923.30
1986	Jan-Mar	20667.60	31174.50	9490.74	16952.00	11177.30	14263.60
	Apr-Jun	21030.80	11704.00	9555.87	2926.54	11474.70	8738.69
	Jul-Sep	22215.00	10909.30	10125.10	2094.89	12089.50	8769.58
	Oct-Dec	23632.60	33758.20	10787.20	17985.60	12845.40	15815.20
1987	Jan-Mar	23512.00	40144.90	10302.00	22111.70	13209.10	18097.40
	Apr-Jun	24598.60	15656.20	10796.90	4443.74	13801.30	11176.40
	Jul-Sep	26003.60	6167.76	11650.00	-2433.15	14354.60	8524.64
	Oct-Dec	25925.80	38071.10	11600.20	20226.70	14326.00	17892.60
1988	Jan-Mar	24763.90	56642.00	10926.70	33553.10	13834.90	23209.10
	Apr-Jun	26120.40	18975.70	11883.60	6798.73	14235.40	12144.70
	Jul-Sep	29580.90	2463.02	14181.00	-5066.27	15402.00	7427.24
	Oct-Dec	30800.70	33185.20	14777.70	16483.40	16024.70	16716.00
1989	Jan-Mar	31523.10	51682.70	14893.60	29214.10	16629.70	22549.10
	Apr-Jun	33077.40	25279.40	15789.10	10252.40	17288.60	14996.90
	Jul-Sep	34077.10	7612.82	16493.40	-2303.41	17583.70	9811.44
	Oct-Dec	34492.40	48595.10	16985.90	26998.90	17506.00	21650.60
1990	Jan-Mar	33828.00	55724.90	16919.80	32456.40	16905.00	23349.00
	Apr-Jun	35250.60	21776.00	18070.10	8488.47	17178.60	13230.00
	Jul-Sep	38736.20	15936.90	20420.00	4239.13	18318.50	11612.40
	Oct-Dec	40261.10	54638.20	21153.10	31379.00	19111.00	23321.60

Table A7: Interpolated Quarterly Investment using Chow-Lin Method (Continued)

(Million Rupees)

		Total Investment		**Private Investment**		**Public Investment**	
		Indicator		**Indicator**		**Indicator**	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
1991	Jan-Mar	40820.70	65689.30	20965.80	38631.60	19856.20	27157.10
	Apr-Jun	43359.40	25374.40	22242.20	9472.80	21118.20	15832.20
	Jul-Sep	45413.10	24745.60	23257.30	8576.29	22155.00	16086.90
	Oct-Dec	48052.90	61836.70	24760.60	34545.30	23290.60	27343.80
1992	Jan-Mar	51127.10	81923.00	26645.90	48509.40	24480.70	33531.80
	Apr-Jun	55256.40	38335.30	29199.60	17180.80	26057.50	21087.50
	Jul-Sep	58745.80	30483.90	31235.20	11169.80	27511.50	19205.30
	Oct-Dec	60230.70	74617.80	31797.40	42017.90	28432.30	32657.40
1993	Jan-Mar	60870.20	91483.80	31697.30	53432.10	29170.50	38169.40
	Apr-Jun	63116.60	45438.60	32927.20	20367.20	30188.50	25000.00
	Jul-Sep	65675.10	36849.60	34580.60	14113.20	31096.10	22624.70
	Oct-Dec	66982.00	82872.00	35562.90	46855.50	31420.90	36081.80
1994	Jan-Mar	66895.50	107047.00	35774.80	64285.80	31118.80	42917.20
	Apr-Jun	68784.00	57685.70	37002.10	29114.50	31780.80	28525.40
	Jul-Sep	70921.10	38960.60	38036.40	15334.30	32884.90	23499.10
	Oct-Dec	74277.40	77185.00	39556.70	41635.40	34723.50	35566.30
1995	Jan-Mar	76178.80	102886.00	39691.00	58671.80	36491.00	44324.80
	Apr-Jun	76524.30	69650.10	38934.50	34039.10	37588.60	35579.00
	Jul-Sep	80941.50	45164.40	41226.10	15815.60	39714.90	29207.40
	Oct-Dec	84200.40	100144.00	42904.40	54229.50	41294.40	45977.80
1996	Jan-Mar	87827.40	119552.00	45037.70	67570.50	42788.70	52107.10
	Apr-Jun	90643.40	76569.60	46946.20	36945.20	43696.70	39567.10
	Jul-Sep	93482.00	66442.60	49213.30	30005.20	44269.30	36329.10
	Oct-Dec	96471.10	105860.00	51928.90	58605.10	44543.30	47294.70
1997	Jan-Mar	98962.60	131481.00	54639.30	77754.30	44319.50	53862.30
	Apr-Jun	99585.90	78794.80	56617.80	41859.60	42966.10	36856.20
	Jul-Sep	98716.60	72541.60	58128.00	39524.10	40589.90	32909.30
	Oct-Dec	99593.80	114041.00	61437.90	71685.00	38160.50	42408.10
1998	Jan-Mar	100264.00	162230.00	65181.50	109176.00	35080.20	53292.10
	Apr-Jun	101578.00	83055.20	67359.80	54198.20	34217.60	28781.40
	Jul-Sep	101592.00	62517.20	66611.70	38867.20	34981.10	23499.00
	Oct-Dec	99410.70	95042.40	62312.00	59223.80	37101.10	35807.50
1999	Jan-Mar	94671.60	144939.00	54204.60	89916.10	40472.00	55225.80
	Apr-Jun	95501.10	70544.30	52195.30	34466.00	43306.60	35978.60
	Jul-Sep	102800.00	62269.70	56913.70	28120.80	45883.40	33985.90
	Oct-Dec	116384.00	131604.00	68230.30	79041.10	48151.00	52622.70
2000	Jan-Mar	133664.00	162036.00	84333.50	104470.00	49331.20	57673.20
	Apr-Jun	148585.00	134723.00	97029.30	87174.90	51556.90	47490.10
	Jul-Sep	159352.00	139632.00	105062.00	91059.60	54288.90	48495.30
	Oct-Dec	165810.00	171019.00	108324.00	112045.00	57483.90	59002.40

Table A7: Interpolated Quarterly Investment using Chow-Lin Method (Continued)

(Million Rupees)

		Total Investment		Private Investment		Public Investment	
		Indicator		Indicator		Indicator	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
2001	Jan-Mar	164504.00	220346.00	104395.00	144065.00	60105.80	76504.50
	Apr-Jun	164070.00	146520.00	103346.00	90876.20	60722.30	55572.40
	Jul-Sep	164960.00	136845.00	105491.00	85520.60	59470.60	51212.80
	Oct-Dec	165791.00	155614.00	109865.00	102636.00	55929.30	52938.30
2002	Jan-Mar	165736.00	224407.00	115889.00	157549.00	49838.30	67084.60
	Apr-Jun	167892.00	161251.00	121894.00	117168.00	45994.20	44052.90
	Jul-Sep	172202.00	130165.00	127839.00	97994.40	44367.70	32009.50
	Oct-Dec	174543.00	164550.00	130842.00	123753.00	43708.80	40762.00
2003	Jan-Mar	177910.00	240584.00	132999.00	177522.00	44918.30	63313.10
	Apr-Jun	180774.00	153663.00	134499.00	115235.00	46276.20	38317.30
	Jul-Sep	184896.00	158553.00	136575.00	117851.00	48316.10	40592.70
	Oct-Dec	192853.00	183634.00	141031.00	134497.00	51818.40	49105.80
2004	Jan-Mar	195866.00	226081.00	141721.00	163167.00	54140.40	63027.10
	Apr-Jun	204461.00	206301.00	147837.00	149136.00	56622.30	57169.10
	Jul-Sep	216297.00	182120.00	157740.00	133476.00	58560.20	48513.50
	Oct-Dec	228211.00	230334.00	169217.00	170734.00	58999.10	59612.30
2005	Jan-Mar	241498.00	271009.00	183175.00	204136.00	58325.50	66990.10
	Apr-Jun	262438.00	264672.00	201832.00	203431.00	60608.90	61254.70
	Jul-Sep	286497.00	263932.00	222014.00	205987.00	64480.20	57855.20
	Oct-Dec	316067.00	306887.00	245398.00	238865.00	70665.40	67980.00
2006	Jan-Mar	350825.00	382239.00	271759.00	294042.00	79076.10	88312.00
	Apr-Jun	380506.00	401402.00	293040.00	307852.00	87468.80	93622.10
	Jul-Sep	408297.00	384738.00	311473.00	294760.00	96819.50	89891.60
	Oct-Dec	426213.00	397462.00	321469.00	301086.00	104736.00	96274.40
2007	Jan-Mar	435119.00	454943.00	323631.00	337747.00	111493.00	117286.00
	Apr-Jun	446037.00	467020.00	328590.00	343513.00	117452.00	123597.00
	Jul-Sep	459890.00	444492.00	336989.00	326051.00	122900.00	118379.00
	Oct-Dec	473560.00	448151.00	346646.00	328544.00	126905.00	119488.00
2008	Jan-Mar	487287.00	539660.00	357730.00	394789.00	129539.00	145034.00
	Apr-Jun	514525.00	543420.00	378067.00	398546.00	136456.00	144979.00
	Jul-Sep	541201.00	498838.00	397808.00	367806.00	143408.00	130897.00
	Oct-Dec	551730.00	512826.00	406043.00	378506.00	145693.00	134186.00
2009	Jan-Mar	549392.00	553223.00	405069.00	407805.00	144296.00	145402.00
	Apr-Jun	554182.00	559330.00	407824.00	411501.00	146338.00	147827.00
	Jul-Sep	556654.00	543102.00	407693.00	398086.00	148968.00	144973.00
	Oct-Dec	550693.00	555266.00	400396.00	403591.00	150338.00	151738.00
2010	Jan-Mar	543090.00	594668.00	390686.00	427195.00	152492.00	167784.00
	Apr-Jun	540371.00	573260.00	385474.00	408708.00	154968.00	164763.00
	Jul-Sep	550733.00	516520.00	390496.00	366223.00	160233.00	150159.00
	Oct-Dec	562775.00	512521.00	397772.00	362301.00	164849.00	149836.00

Table A8: Interpolated Quarterly Govt. Expenditures using Chow-Lin Method

(Million Rupees)

		Total Exp.		Development Exp.		Current Exp.	
		Indicator		Indicator		Indicator	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
1979	Jan-Mar	1044.71	1422.53	3704.81	4133.02	10442.70	17283.80
	Apr-Jun	836.46	765.30	3739.81	3647.48	10674.00	9760.61
	Jul-Sep	1023.69	646.09	3912.63	3456.97	14873.60	7184.91
	Oct-Dec	1230.13	1301.09	3800.75	3920.53	13154.80	14915.70
1980	Jan-Mar	1928.73	2271.10	3725.95	4240.77	13049.30	21057.30
	Apr-Jun	2251.03	2168.82	3690.07	3557.21	13692.10	12028.80
	Jul-Sep	2434.50	2036.92	3741.65	3169.12	16221.80	7220.78
	Oct-Dec	2305.74	2443.16	3666.33	3856.90	15624.80	18281.10
1981	Jan-Mar	1784.48	2283.90	3541.00	4188.37	13703.20	23842.80
	Apr-Jun	1630.82	1563.93	3559.32	3444.47	13454.20	12334.30
	Jul-Sep	1746.18	1256.29	3804.65	3152.07	16828.90	6540.19
	Oct-Dec	1825.53	1882.88	3990.03	4110.09	17111.70	18380.60
1982	Jan-Mar	1977.80	2090.64	4204.42	4412.26	16380.80	19408.90
	Apr-Jun	2075.22	2167.23	4442.07	4579.79	16497.00	18705.60
	Jul-Sep	2209.41	1807.04	4729.75	4138.80	18081.70	9195.43
	Oct-Dec	2359.56	2557.10	4981.76	5227.15	19124.50	22774.10
1983	Jan-Mar	2605.17	2895.34	5190.12	5643.67	19434.40	26592.80
	Apr-Jun	2781.73	2911.49	5346.27	5554.37	20955.00	24361.10
	Jul-Sep	2956.39	2443.10	5421.84	4673.79	23020.30	11819.00
	Oct-Dec	3202.71	3296.07	5419.76	5506.17	25699.30	26336.10
1984	Jan-Mar	3466.82	3742.07	5158.93	5577.52	24756.90	31002.80
	Apr-Jun	3574.51	3275.96	5072.76	4650.03	24916.60	18846.90
	Jul-Sep	3614.46	3223.80	5185.96	4613.31	26758.70	18070.90
1985	Oct-Dec	3437.21	3851.16	5375.36	5952.14	27400.80	35912.40
	Jan-Mar	2896.20	3552.72	5678.46	6654.23	27717.50	42346.00
	Apr-Jun	2760.39	2192.65	6068.00	5320.74	28718.10	17682.70
	Jul-Sep	2905.00	2269.06	6564.61	5660.24	30878.00	17255.20
	Oct-Dec	3329.41	3876.57	7096.93	7772.79	32518.30	42548.10
1986	Jan-Mar	4376.97	4895.43	7692.70	8401.23	34277.10	44948.90
	Apr-Jun	4730.92	4321.31	7962.77	7332.61	35507.20	26352.40
	Jul-Sep	4705.82	4173.68	7954.21	7191.45	37304.40	25914.60
	Oct-Dec	4201.30	4624.58	7628.31	8312.71	38764.40	48637.10
1987	Jan-Mar	2655.79	3435.13	6868.15	7989.34	37160.20	54138.90
	Apr-Jun	2224.32	1748.31	6402.89	5799.08	38457.70	29530.20
	Jul-Sep	2454.12	1493.92	6173.57	4836.35	41289.00	20999.90
	Oct-Dec	3334.77	3991.64	6061.39	6881.23	42882.00	55120.00
1988	Jan-Mar	5555.21	7023.00	6092.46	8240.85	43851.00	76792.20
	Apr-Jun	6516.26	6185.45	6287.05	5803.23	47490.50	40818.60
	Jul-Sep	6858.42	5591.43	6617.97	4790.47	53163.20	25120.00
	Oct-Dec	6420.11	6550.13	6799.53	6962.46	54182.30	55956.20
1989	Jan-Mar	4894.73	5954.09	6946.48	8307.11	53230.80	73460.20
	Apr-Jun	4358.66	3993.45	7237.55	6711.81	53882.80	45917.50
	Jul-Sep	4231.21	2907.80	7581.71	5796.03	54003.90	27331.80
	Oct-Dec	4345.40	4974.66	7977.26	8928.06	53548.50	67956.50
1990	Jan-Mar	4709.30	5815.06	8391.92	9866.90	51754.50	74657.00
	Apr-Jun	4953.42	4371.87	8961.91	8050.98	53210.80	40197.30
	Jul-Sep	5153.57	4047.88	9686.06	8149.67	57881.10	34239.10
	Oct-Dec	5022.71	5604.20	10300.10	11272.50	59572.60	73325.50

Table A8: Interpolated Quarterly Govt. Expenditures using Chow-Lin Method (Continued)

(Million Rupees)

		Total Exp.		Development Exp.		Current Exp.	
		Indicator		Indicator		Indicator	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
1991	Jan-Mar	4394.41	5430.65	10870.00	12548.90	59817.90	84771.70
	Apr-Jun	4492.43	3503.70	11820.80	10608.40	63354.80	44983.10
	Jul-Sep	5113.17	4166.86	12991.00	11596.00	66390.80	45635.10
	Oct-Dec	6726.99	7625.79	14452.20	15380.60	70574.40	84748.10
1992	Jan-Mar	10527.80	12009.90	16195.50	18271.90	75671.90	107224.00
	Apr-Jun	11990.50	11243.50	17407.30	16265.60	81358.70	64315.30
	Jul-Sep	12031.30	10689.60	17977.00	16071.40	85025.50	56112.50
	Oct-Dec	10452.40	11059.00	17815.10	18786.10	84571.90	98976.00
1993	Jan-Mar	5975.58	7789.63	16997.60	19061.70	81781.60	113110.00
	Apr-Jun	4286.63	3544.28	16741.00	15547.70	82458.00	64838.40
	Jul-Sep	3797.29	2238.73	16959.70	15015.80	84608.50	55214.80
	Oct-Dec	3830.50	4317.36	17550.70	18623.70	85826.90	101512.00
1994	Jan-Mar	4249.73	6087.63	18505.30	21213.40	85895.70	126748.00
	Apr-Jun	4680.60	4144.17	19147.30	18397.70	88910.00	77971.40
	Jul-Sep	5170.09	3680.69	19363.50	17206.70	92213.60	60068.70
	Oct-Dec	5961.58	6149.51	19217.90	19416.20	97301.60	99533.40
1995	Jan-Mar	7274.85	8487.57	18534.10	20337.70	100059.00	126418.00
	Apr-Jun	7908.22	7565.66	18018.90	17552.90	100655.00	94399.80
	Jul-Sep	8611.79	6923.15	18042.00	15628.30	107751.00	71631.80
	Oct-Dec	9398.14	10216.60	18259.00	19335.10	113298.00	129314.00
1996	Jan-Mar	10822.80	12295.40	18770.50	20911.50	119646.00	151623.00
	Apr-Jun	11621.50	10914.90	19061.70	18111.50	124481.00	110545.00
	Jul-Sep	12318.20	11029.70	19187.50	17362.40	129087.00	101978.00
	Oct-Dec	13262.60	13785.10	19156.30	19790.60	133661.00	142729.00
1997	Jan-Mar	14899.80	16599.70	18925.20	21122.20	137207.00	169025.00
	Apr-Jun	15433.40	14547.40	18838.50	17437.30	137995.00	116545.00
	Jul-Sep	15129.00	13834.80	18920.90	17152.70	136606.00	110887.00
	Oct-Dec	13847.70	14328.10	19385.40	20357.80	138026.00	153377.00
1998	Jan-Mar	10313.90	13347.60	20103.80	24282.10	139249.00	202673.00
	Apr-Jun	9185.40	8276.92	21078.60	19828.10	144614.00	126214.00
	Jul-Sep	9268.48	7352.21	22182.60	19547.50	151126.00	111274.00
	Oct-Dec	10411.20	10202.30	23357.90	23065.30	157414.00	152242.00
1999	Jan-Mar	13392.90	15536.90	24581.60	27974.70	162922.00	213184.00
	Apr-Jun	14696.60	13393.50	24983.10	23298.80	168031.00	143044.00
	Jul-Sep	15370.70	13519.10	24621.90	21886.40	174129.00	133540.00
	Oct-Dec	15851.80	16862.50	23485.30	24512.10	180928.00	196241.00
2000	Jan-Mar	16246.20	18190.00	21401.50	23312.40	184437.00	213841.00
	Apr-Jun	16105.80	15836.60	19803.70	18866.50	187343.00	173833.00
	Jul-Sep	15076.10	13984.10	18571.80	17242.30	186874.00	166802.00
	Oct-Dec	12175.00	11592.40	17694.10	18049.80	182785.00	186962.00

Table A8: Interpolated Quarterly Govt. Expenditures using Chow-Lin Method (Continued)

(Million Rupees)

		Total Exp.		Development Exp.		Current Exp.	
		Indicator		Indicator		Indicator	
Year	**Quarter**	**CPI**	**IPI**	**CPI**	**IPI**	**CPI**	**IPI**
2001	Jan-Mar	4725.83	6512.26	16942.20	20710.60	169757.00	225711.00
	Apr-Jun	3197.27	1656.95	16314.80	15129.70	167384.00	149893.00
	Jul-Sep	6358.34	5280.01	15840.90	13943.90	176359.00	148093.00
	Oct-Dec	16567.60	17399.80	15429.10	14742.80	194557.00	184361.00
2002	Jan-Mar	41865.40	43993.20	15024.50	18981.40	220708.00	280430.00
	Apr-Jun	51441.00	51165.40	15009.50	14560.10	238428.00	232137.00
	Jul-Sep	52855.60	51274.50	15380.30	12546.00	247630.00	204630.00
	Oct-Dec	46840.00	46568.90	15865.80	15192.50	241969.00	231537.00
2003	Jan-Mar	28723.90	32989.80	16663.40	20892.40	226055.00	288870.00
	Apr-Jun	21125.60	20111.90	16962.80	15131.90	213906.00	186984.00
	Jul-Sep	18035.00	16143.10	16880.20	15100.90	208230.00	182382.00
	Oct-Dec	17022.50	15662.20	16584.60	15965.80	212990.00	202946.00
2004	Jan-Mar	16463.40	17670.20	15498.20	17533.80	214676.00	245831.00
	Apr-Jun	16390.10	16516.70	14985.50	15108.00	221260.00	223484.00
	Jul-Sep	16342.50	14812.00	14891.90	12588.00	229138.00	194125.00
	Oct-Dec	15768.00	15965.10	15008.50	15154.20	233438.00	235073.00
2005	Jan-Mar	14035.00	15647.80	15420.20	17412.00	236148.00	265845.00
	Apr-Jun	13465.00	13628.00	16213.70	16366.60	245302.00	246894.00
	Jul-Sep	13010.20	11839.40	17090.60	15567.80	253910.00	231187.00
	Oct-Dec	12228.90	11623.80	18208.50	17586.60	265646.00	257080.00
2006	Jan-Mar	10257.90	11845.90	19546.00	21661.20	279993.00	313197.00
	Apr-Jun	9555.78	10595.60	20793.30	22198.60	292645.00	315236.00
	Jul-Sep	9508.92	8310.26	22160.10	20573.70	308493.00	283695.00
	Oct-Dec	9196.42	7767.23	23121.60	21187.50	315233.00	284236.00
2007	Jan-Mar	8192.43	9394.07	23734.70	25077.70	314191.00	332331.00
	Apr-Jun	7923.39	9079.93	24322.50	25741.00	324459.00	344613.00
	Jul-Sep	7990.90	7127.17	24945.70	23906.40	347454.00	331957.00
	Oct-Dec	7825.28	6330.83	25399.10	23676.90	378378.00	355581.00
2008	Jan-Mar	6805.59	9573.00	25698.20	29214.30	417598.00	477582.00
	Apr-Jun	8054.47	9492.36	27003.00	28949.40	469378.00	500777.00
	Jul-Sep	10490.40	8281.69	28387.60	25542.50	512060.00	464857.00
	Oct-Dec	13862.60	11866.00	28826.30	26208.90	521655.00	477475.00
2009	Jan-Mar	20465.20	20361.90	28534.60	28779.80	503214.00	506255.00
	Apr-Jun	23935.30	24071.50	29013.90	29351.60	511452.00	515485.00
	Jul-Sep	25899.60	25295.10	29642.70	28732.40	531835.00	517209.00
	Oct-Dec	26865.90	27437.60	30018.70	30346.10	554956.00	562508.00
2010	Jan-Mar	27474.50	31097.20	30588.80	34116.10	591283.00	650232.00
	Apr-Jun	28183.70	30715.50	31230.40	33485.30	623705.00	663797.00
	Jul-Sep	29388.50	27669.30	32483.00	30173.50	664850.00	628866.00
	Oct-Dec	30373.40	25937.90	33596.80	30124.10	697181.00	634124.00

Table A9: Interpolated Quarterly GDP using Spline Method

(Million Rupees)

Year	Quarter	GDP (1960 Prices)	GDP (1981 Prices)	GDP (2000 Prices)
1971	Jan-Mar	32336.00	147380.00	808076.00
	Apr-Jun	32567.30	147858.10	808355.00
	Jul-Sep	32822.00	148486.60	809637.60
	Oct-Dec	33123.40	149416.10	812927.40
1972	Jan-Mar	33495.00	150797.00	819228.00
	Apr-Jun	33954.10	152736.10	829235.70
	Jul-Sep	34494.80	155166.00	842417.70
	Oct-Dec	35105.10	157975.30	857933.80
1973	Jan-Mar	35773.00	161053.00	874944.00
	Apr-Jun	36481.20	164275.90	892592.90
	Jul-Sep	37191.00	167472.80	909964.30
	Oct-Dec	37858.30	170460.50	926126.80
1974	Jan-Mar	38439.00	173056.00	940149.00
	Apr-Jun	38903.40	175137.20	951418.30
	Jul-Sep	39278.80	176827.00	960597.90
	Oct-Dec	39607.10	178309.30	968669.80
1975	Jan-Mar	39930.00	179768.00	976616.00
	Apr-Jun	40277.20	181333.60	985131.10
	Jul-Sep	40629.90	182922.10	993759.80
	Oct-Dec	40957.40	184395.80	1001760.00
1976	Jan-Mar	41229.00	185617.00	1008388.00
	Apr-Jun	41433.50	186536.80	1013382.00
	Jul-Sep	41638.70	187460.20	1018400.00
	Oct-Dec	41932.00	188781.10	1025577.00
1977	Jan-Mar	42401.00	190893.00	1037053.00
	Apr-Jun	43100.20	194041.70	1054160.00
	Jul-Sep	43952.70	197880.70	1075015.00
	Oct-Dec	44848.90	201915.30	1096933.00
1978	Jan-Mar	45679.00	205651.00	1117227.00
	Apr-Jun	46365.60	208738.60	1134000.00
	Jul-Sep	46959.70	211410.60	1148516.00
	Oct-Dec	47544.70	214044.80	1162826.00
1979	Jan-Mar	48204.00	217019.00	1178984.00
	Apr-Jun	48997.20	220602.50	1198452.00
	Jul-Sep	49889.30	224629.90	1220332.00
	Oct-Dec	50821.80	228827.10	1243134.00
1980	Jan-Mar	51736.00	232920.00	1265370.00
	Apr-Jun	52589.10	236713.70	1285980.00
	Jul-Sep	53401.50	240329.80	1305625.00
	Oct-Dec	54209.10	243968.70	1325393.00

Table A9: Interpolated Quarterly GDP using Spline Method (Continued)

(Million Rupees)

Year	Quarter	GDP (1960 Prices)	GDP (1981 Prices)	GDP (2000 Prices)
1981	Jan-Mar	55048.00	247831.00	1346376.00
	Apr-Jun	55947.70	252071.20	1369411.00
	Jul-Sep	56910.90	256659.00	1394335.00
	Oct-Dec	57933.60	261517.70	1420730.00
1982	Jan-Mar	59012.00	266571.00	1448183.00
	Apr-Jun	60129.90	271702.70	1476062.00
	Jul-Sep	61221.90	276638.60	1502877.00
	Oct-Dec	62210.50	281064.60	1526922.00
1983	Jan-Mar	63018.00	284667.00	1546492.00
	Apr-Jun	63608.10	287310.20	1560851.00
	Jul-Sep	64109.10	289572.00	1573139.00
	Oct-Dec	64690.60	292208.80	1587464.00
1984	Jan-Mar	65522.00	295977.00	1607935.00
	Apr-Jun	66718.10	301386.80	1637325.00
	Jul-Sep	68174.10	307965.20	1673062.00
1985	Oct-Dec	69730.30	314992.90	1711242.00
	Jan-Mar	71227.00	321751.00	1747956.00
	Apr-Jun	72541.00	327684.70	1780192.00
	Jul-Sep	73695.10	332896.80	1808507.00
	Oct-Dec	74748.30	337654.20	1834353.00
1986	Jan-Mar	75760.00	342224.00	1859179.00
	Apr-Jun	76782.80	346844.30	1884279.00
	Jul-Sep	77843.70	351636.80	1910316.00
	Oct-Dec	78963.30	356694.50	1937792.00
1987	Jan-Mar	80162.00	362110.00	1967212.00
	Apr-Jun	81447.40	367916.90	1998759.00
	Jul-Sep	82774.40	373912.00	2031328.00
	Oct-Dec	84085.00	379832.50	2063492.00
1988	Jan-Mar	85321.00	385416.00	2093825.00
	Apr-Jun	86441.10	390475.20	2121310.00
	Jul-Sep	87470.40	395124.00	2146565.00
	Oct-Dec	88450.70	399551.80	2170620.00
1989	Jan-Mar	89424.00	403948.00	2194503.00
	Apr-Jun	90423.40	408462.50	2219029.00
	Jul-Sep	91447.20	413087.90	2244157.00
	Oct-Dec	92485.20	417777.30	2269633.00
1990	Jan-Mar	93527.00	422484.00	2295202.00
	Apr-Jun	94581.20	427246.40	2321074.00
	Jul-Sep	95731.90	432444.10	2349312.00
	Oct-Dec	97081.90	438542.00	2382439.00

Table A9: Interpolated Quarterly GDP using SplineMethod (Continued)

(Million Rupees)

Year	Quarter	GDP (1960 Prices)	GDP (1981 Prices)	GDP (2000 Prices)
1991	Jan-Mar	98734.00	446005.00	2422983.00
	Apr-Jun	100728.00	455010.60	2471907.00
	Jul-Sep	102848.00	464586.70	2523931.00
	Oct-Dec	104815.00	473474.00	2572212.00
1992	Jan-Mar	106351.00	480413.00	2609909.00
	Apr-Jun	107273.00	484579.10	2632541.00
	Jul-Sep	107784.00	486886.90	2645078.00
	Oct-Dec	108183.00	488685.80	2654851.00
1993	Jan-Mar	108767.00	491325.00	2669190.00
	Apr-Jun	109754.00	495784.70	2693421.00
	Jul-Sep	111035.00	501567.30	2724839.00
	Oct-Dec	112416.00	507806.40	2758733.00
1994	Jan-Mar	113706.00	513635.00	2790392.00
	Apr-Jun	114781.00	518488.90	2816750.00
	Jul-Sep	115782.00	523013.00	2841318.00
	Oct-Dec	116920.00	528154.60	2869251.00
1995	Jan-Mar	118405.00	534861.00	2905705.00
	Apr-Jun	120355.00	543671.40	2953611.00
	Jul-Sep	122529.00	553492.10	3007000.00
	Oct-Dec	124594.00	562821.30	3057679.00
1996	Jan-Mar	126218.00	570157.00	3097456.00
	Apr-Jun	127173.00	574471.50	3120739.00
	Jul-Sep	127652.00	576632.90	3132345.00
	Oct-Dec	127951.00	577983.40	3139691.00
1997	Jan-Mar	128367.00	579865.00	3150196.00
	Apr-Jun	129131.00	583316.40	3169530.00
	Jul-Sep	130204.00	588162.60	3196368.00
	Oct-Dec	131479.00	593925.00	3227636.00
1998	Jan-Mar	132852.00	600125.00	3260261.00
	Apr-Jun	134235.00	606370.10	3292011.00
	Jul-Sep	135617.00	612611.50	3324014.00
	Oct-Dec	137006.00	618886.70	3358242.00
1999	Jan-Mar	138411.00	625233.00	3396664.00
	Apr-Jun	139832.00	631649.90	3440163.00
	Jul-Sep	141234.00	637985.80	3485263.00
	Oct-Dec	142576.00	644050.90	3527403.00
2000	Jan-Mar	143817.00	649656.00	3562020.00
	Apr-Jun	144935.00	654708.10	3586084.00
	Jul-Sep	145997.00	659501.30	3602694.00
	Oct-Dec	147087.00	664426.00	3616486.00

Table A9: Interpolated Quarterly GDP using Spline Method (Continued)

(Million Rupees)

Year	Quarter	GDP (1960 Prices)	GDP (1981 Prices)	GDP (2000 Prices)
2001	Jan-Mar	148293.00	669873.00	3632091.00
	Apr-Jun	149690.00	676183.40	3653203.00
	Jul-Sep	151310.00	683500.40	3679753.00
	Oct-Dec	153173.00	691917.80	3710728.00
2002	Jan-Mar	155301.00	701529.00	3745118.00
	Apr-Jun	157714.00	712431.60	3782311.00
	Jul-Sep	160438.00	724737.40	3823288.00
	Oct-Dec	163499.00	738562.30	3869426.00
2003	Jan-Mar	166921.00	754022.00	3922104.00
	Apr-Jun	170686.00	771029.80	3982541.00
	Jul-Sep	174596.00	788689.60	4051319.00
	Oct-Dec	178406.00	805902.80	4128859.00
2004	Jan-Mar	181875.00	821571.00	4215582.00
	Apr-Jun	184836.00	834948.00	4310825.00
	Jul-Sep	187437.00	846696.90	4409577.00
	Oct-Dec	189903.00	857833.10	4505744.00
2005	Jan-Mar	192457.00	869372.00	4593230.00
	Apr-Jun	195286.00	882153.30	4667909.00
	Jul-Sep	198421.00	896313.80	4733530.00
	Oct-Dec	201852.00	911815.00	4795812.00
2006	Jan-Mar	205572.00	928618.00	4860476.00
	Apr-Jun	209528.00	946486.90	4932215.00
	Jul-Sep	213493.00	964397.20	5011622.00
	Oct-Dec	217196.00	981126.80	5098265.00
2007	Jan-Mar	220368.00	995454.00	5191710.00
	Apr-Jun	222832.00	1006584.00	5290597.00
	Jul-Sep	224790.00	1015428.00	5389843.00
	Oct-Dec	226538.00	1023325.00	5483440.00
2008	Jan-Mar	228373.00	1031614.00	5565375.00
	Apr-Jun	230526.00	1041338.00	5631378.00
	Jul-Sep	232966.00	1052361.00	5684127.00
	Oct-Dec	235598.00	1064248.00	5728040.00
2009	Jan-Mar	238325.00	1076568.00	5767536.00

Table A10: Interpolated Quarterly GDP using Spline Method

		(Million Rupees)
Year	**Quarter**	**GDP (Current Prices)**
1973	Jan-Mar	67492.00
	Apr-Jun	72435.78
	Jul-Sep	77463.05
	Oct-Dec	82657.30
1974	Jan-Mar	88102.00
	Apr-Jun	93835.77
	Jul-Sep	99717.72
	Oct-Dec	105562.10
1975	Jan-Mar	111183.00
	Apr-Jun	116436.10
	Jul-Sep	121342.40
	Oct-Dec	125964.30
1976	Jan-Mar	130364.00
	Apr-Jun	134647.10
	Jul-Sep	139091.40
	Oct-Dec	144018.00
1977	Jan-Mar	149748.00
	Apr-Jun	156433.80
	Jul-Sep	163553.70
	Oct-Dec	170417.20
1978	Jan-Mar	176334.00
	Apr-Jun	180898.00
	Jul-Sep	184839.60
	Oct-Dec	189173.70
1979	Jan-Mar	194915.00
	Apr-Jun	202795.90
	Jul-Sep	212419.60
	Oct-Dec	223107.00
1980	Jan-Mar	234179.00
	Apr-Jun	245104.30
	Jul-Sep	255943.40
	Oct-Dec	266904.50

Table A10: Interpolated Quarterly GDP using Spline Method (Continued)

		(Million Rupees)
Year	**Quarter**	**GDP (Current Prices)**
1981	Jan-Mar	278196.00
	Apr-Jun	289921.90
	Jul-Sep	301769.30
	Oct-Dec	313320.80
1982	Jan-Mar	324159.00
	Apr-Jun	334059.80
	Jul-Sep	343570.80
	Oct-Dec	353432.90
1983	Jan-Mar	364387.00
	Apr-Jun	376952.90
	Jul-Sep	390767.10
	Oct-Dec	405244.90
1984	Jan-Mar	419802.00
	Apr-Jun	433932.30
	Jul-Sep	447443.90
1985	Oct-Dec	460223.30
	Jan-Mar	472157.00
	Apr-Jun	483215.50
	Jul-Sep	493704.40
	Oct-Dec	504013.40
1986	Jan-Mar	514532.00
	Apr-Jun	525743.30
	Jul-Sep	538504.40
	Oct-Dec	553766.10
1987	Jan-Mar	572479.00
	Apr-Jun	595195.80
	Jul-Sep	620877.60
	Oct-Dec	648087.60
1988	Jan-Mar	675389.00
	Apr-Jun	701547.60
	Jul-Sep	726140.30
	Oct-Dec	748946.30
1989	Jan-Mar	769745.00
	Apr-Jun	788745.40
	Jul-Sep	807874.40
	Oct-Dec	829488.20
1990	Jan-Mar	855943.00
	Apr-Jun	889021.80
	Jul-Sep	928213.70
	Oct-Dec	972434.50

Table A10: Interpolated Quarterly GDP using Spline Method (Continued)

		(Million Rupees)
Year	**Quarter**	**GDP (Current Prices)**
1991	Jan-Mar	1020600.00
	Apr-Jun	1071319.00
	Jul-Sep	1121973.00
	Oct-Dec	1169637.00
1992	Jan-Mar	1211385.00
	Apr-Jun	1245556.00
	Jul-Sep	1275547.00
	Oct-Dec	1306018.00
1993	Jan-Mar	1341629.00
	Apr-Jun	1386173.00
	Jul-Sep	1439966.00
	Oct-Dec	1502458.00
1994	Jan-Mar	1573097.00
	Apr-Jun	1650644.00
	Jul-Sep	1731107.00
	Oct-Dec	1809809.00
1995	Jan-Mar	1882071.00
	Apr-Jun	1944886.00
	Jul-Sep	2001937.00
	Oct-Dec	2058581.00
1996	Jan-Mar	2120173.00
	Apr-Jun	2190587.00
	Jul-Sep	2267771.00
	Oct-Dec	2348191.00
1997	Jan-Mar	2428312.00
	Apr-Jun	2504641.00
	Jul-Sep	2573839.00
	Oct-Dec	2632610.00
1998	Jan-Mar	2677656.00
	Apr-Jun	2710113.00
	Jul-Sep	2748850.00
	Oct-Dec	2817171.00
1999	Jan-Mar	2938379.00
	Apr-Jun	3126017.00
	Jul-Sep	3354583.00
	Oct-Dec	3588810.00
2000	Jan-Mar	3793436.00
	Apr-Jun	3941821.00
	Jul-Sep	4041828.00
	Oct-Dec	4109943.00

Table A10: Interpolated Quarterly GDP using Spline Method (Continued)

		(Million Rupees)
Year	**Quarter**	**GDP (Current Prices)**
2001	Jan-Mar	4162654.00
	Apr-Jun	4214144.00
	Jul-Sep	4269375.00
	Oct-Dec	4331008.00
2002	Jan-Mar	4401699.00
	Apr-Jun	4484025.00
	Jul-Sep	4580222.00
	Oct-Dec	4692443.00
2003	Jan-Mar	4822842.00
	Apr-Jun	4973000.00
	Jul-Sep	5142209.00
	Oct-Dec	5329190.00
2004	Jan-Mar	5532663.00
	Apr-Jun	5751566.00
	Jul-Sep	5985704.00
	Oct-Dec	6235102.00
2005	Jan-Mar	6499782.00
	Apr-Jun	6778385.00
	Jul-Sep	7064011.00
	Oct-Dec	7348379.00
2006	Jan-Mar	7623205.00
	Apr-Jun	7883513.00
	Jul-Sep	8137548.00
	Oct-Dec	8396862.00
2007	Jan-Mar	8673007.00
	Apr-Jun	8978563.00
	Jul-Sep	9330229.00
	Oct-Dec	9745732.00
2008	Jan-Mar	10242799.00
	Apr-Jun	10828816.00
	Jul-Sep	11469796.00
	Oct-Dec	12121413.00
2009	Jan-Mar	12739336.00
	Apr-Jun	13289877.00
	Jul-Sep	13781903.00
	Oct-Dec	14234918.00
2010	Jan-Mar	14668428.00

Table A11: Interpolated Quarterly Investment using Spline Method

(Million Rupees)

Year	Quarter	Total Investment	Private Investment	Public Investment
1971	Jan-Mar	7045.00	3531.00	3514.00
	Apr-Jun	6945.80	3517.10	3428.70
	Jul-Sep	6863.00	3510.10	3352.82
	Oct-Dec	6812.90	3517.10	3295.78
1972	Jan-Mar	6812.00	3545.00	3267.00
	Apr-Jun	6876.90	3596.40	3280.53
	Jul-Sep	7025.50	3656.50	3369.03
	Oct-Dec	7275.80	3706.10	3569.75
1973	Jan-Mar	7646.00	3726.00	3920.00
	Apr-Jun	8153.00	3708.30	4444.73
	Jul-Sep	8809.20	3689.50	5119.69
	Oct-Dec	9625.80	3717.50	5908.31
1974	Jan-Mar	10614.00	3840.00	6774.00
	Apr-Jun	11780.50	4088.80	7691.67
	Jul-Sep	13113.90	4431.80	8682.07
	Oct-Dec	14598.10	4820.60	9777.44
1975	Jan-Mar	16217.00	5207.00	11010.00
	Apr-Jun	17939.80	5554.10	12385.90
	Jul-Sep	19676.20	5869.70	13806.90
	Oct-Dec	21320.90	6173.00	15148.70
1976	Jan-Mar	22769.00	6483.00	16287.00
	Apr-Jun	23945.30	6812.70	17133.80
	Jul-Sep	24895.60	7150.50	17746.30
	Oct-Dec	25695.60	7478.50	18218.20
1977	Jan-Mar	26421.00	7779.00	18643.00
	Apr-Jun	27130.00	8039.70	19091.00
	Jul-Sep	27809.90	8271.10	19539.20
	Oct-Dec	28430.00	8488.80	19941.30
1978	Jan-Mar	28960.00	8709.00	20251.00
	Apr-Jun	29401.20	8944.60	20456.70
	Jul-Sep	29882.10	9197.30	20685.20
	Oct-Dec	30563.20	9465.80	21098.10
1979	Jan-Mar	31605.00	9749.00	21857.00
	Apr-Jun	33117.60	10076.10	23042.70
	Jul-Sep	35010.60	10598.30	24413.60
	Oct-Dec	37143.30	11497.40	25647.10
1980	Jan-Mar	39375.00	12955.00	26421.00
	Apr-Jun	41584.20	15053.00	26531.90
	Jul-Sep	43726.30	17473.30	26253.50
	Oct-Dec	45776.00	19798.00	25978.30

Table A11: Interpolated Quarterly Investment using Spline Method (Continued)

(Million Rupees)

Year	Quarter	Total Investment	Private Investment	Public Investment
1981	Jan-Mar	47708.00	21609.00	26099.00
	Apr-Jun	49509.90	22613.00	26896.80
	Jul-Sep	51222.00	23015.00	28206.90
	Oct-Dec	52897.30	23144.50	29752.70
1982	Jan-Mar	54589.00	23331.00	31258.00
	Apr-Jun	56337.50	23834.10	32503.50
	Jul-Sep	58131.70	24633.20	33498.50
	Oct-Dec	59947.50	25638.00	34309.50
1983	Jan-Mar	61761.00	26758.00	35003.00
	Apr-Jun	63559.10	27915.70	35643.40
	Jul-Sep	65372.50	29086.20	36286.30
	Oct-Dec	67242.60	30257.30	36985.30
1984	Jan-Mar	69211.00	31417.00	37794.00
	Apr-Jun	71304.00	32555.50	38748.50
	Jul-Sep	73487.20	33671.60	39815.60
1985	Oct-Dec	75711.10	34766.50	40944.60
	Jan-Mar	77926.00	35841.00	42085.00
	Apr-Jun	80111.10	36896.30	43214.80
	Jul-Sep	82360.80	37933.60	44427.20
	Oct-Dec	84798.10	38954.10	45844.00
1986	Jan-Mar	87546.00	39959.00	47587.00
	Apr-Jun	90664.10	40957.50	49706.70
	Jul-Sep	93957.90	41989.80	51968.10
	Oct-Dec	97169.20	43104.20	54065.00
1987	Jan-Mar	100040.00	44349.00	55691.00
	Apr-Jun	102442.00	45775.00	56667.00
	Jul-Sep	104766.40	47444.00	57322.40
	Oct-Dec	107534.10	49420.50	58113.60
1988	Jan-Mar	111266.00	51769.00	59497.00
	Apr-Jun	116278.70	54522.60	61756.10
	Jul-Sep	122070.80	57588.60	64482.10
	Oct-Dec	127936.50	60843.10	67093.40
1989	Jan-Mar	133170.00	64162.00	69008.00
	Apr-Jun	137290.70	67436.20	69854.40
	Jul-Sep	140718.50	70617.00	70101.50
	Oct-Dec	144098.50	73670.50	70428.00
1990	Jan-Mar	148076.00	76563.00	71513.00
	Apr-Jun	153214.50	79344.60	73869.80
	Jul-Sep	159751.50	82401.90	77349.60
	Oct-Dec	167843.30	86205.50	81637.80

Table A11: Interpolated Quarterly Investment using Spline Method (Continued)

(Million Rupees)

Year	Quarter	Total Investment	Private Investment	Public Investment
1991	Jan-Mar	177646.00	91226.00	86420.00
	Apr-Jun	189132.40	97715.00	91417.40
	Jul-Sep	201542.40	105048.60	96493.90
	Oct-Dec	213932.80	112383.90	101549.00
1992	Jan-Mar	225360.00	118878.00	106482.00
	Apr-Jun	235100.70	123925.30	111175.00
	Jul-Sep	243311.00	127869.10	115442.00
	Oct-Dec	250366.80	131289.90	119077.00
1993	Jan-Mar	256644.00	134768.00	121876.00
	Apr-Jun	262509.10	138720.00	123789.00
	Jul-Sep	268290.50	142906.60	125384.00
	Oct-Dec	274307.20	146924.40	127383.00
1994	Jan-Mar	280878.00	150370.00	130508.00
	Apr-Jun	288302.60	153033.80	135269.00
	Jul-Sep	296803.30	155480.50	141323.00
	Oct-Dec	306583.10	158468.40	148115.00
1995	Jan-Mar	317845.00	162756.00	155089.00
	Apr-Jun	330583.40	168868.00	161715.00
	Jul-Sep	343958.40	176395.50	167563.00
	Oct-Dec	356921.50	184695.60	172226.00
1996	Jan-Mar	368424.00	193126.00	175298.00
	Apr-Jun	377698.80	201286.50	176412.00
	Jul-Sep	385103.50	209747.60	175356.00
	Oct-Dec	391277.30	219322.10	171955.00
1997	Jan-Mar	396859.00	230823.00	166036.00
	Apr-Jun	402125.20	244268.20	157857.00
	Jul-Sep	405902.40	256495.20	149407.00
	Oct-Dec	406654.30	263546.70	143108.00
1998	Jan-Mar	402845.00	261465.00	141380.00
	Apr-Jun	394470.90	248619.10	145852.00
	Jul-Sep	387658.70	232683.20	154976.00
	Oct-Dec	390067.60	223658.00	166410.00
1999	Jan-Mar	409357.00	231544.00	177813.00
	Apr-Jun	450044.00	262631.50	187413.00
	Jul-Sep	504077.40	308369.30	195708.00
	Oct-Dec	560263.80	356495.60	203768.00
2000	Jan-Mar	607410.00	394749.00	212661.00
	Apr-Jun	637097.60	414294.30	222803.00
	Jul-Sep	652008.30	420002.30	232006.00
	Oct-Dec	657598.50	420170.80	237428.00

Table A11: Interpolated Quarterly Investment using Spline Method (Continued)

(Million Rupees)

Year	Quarter	Total Investment	Private Investment	Public Investment
2001	Jan-Mar	659325.00	423097.00	236228.00
	Apr-Jun	661763.80	435018.10	226746.00
	Jul-Sep	665968.90	453929.60	212039.00
	Oct-Dec	672114.20	475766.50	196348.00
2002	Jan-Mar	680373.00	496464.00	183909.00
	Apr-Jun	690894.30	512871.80	178023.00
	Jul-Sep	703728.00	525498.80	178229.00
	Oct-Dec	718899.20	535768.30	183131.00
2003	Jan-Mar	736433.00	545104.00	191329.00
	Apr-Jun	756575.30	555162.70	201413.00
	Jul-Sep	780456.40	568534.70	211922.00
	Oct-Dec	809426.30	588043.90	221382.00
2004	Jan-Mar	844836.00	616514.00	228322.00
	Apr-Jun	888483.20	656392.90	232090.00
	Jul-Sep	943954.10	708624.60	235330.00
	Oct-Dec	1015282.00	773777.60	241504.00
2005	Jan-Mar	1106500.00	852420.00	254080.00
	Apr-Jun	1218749.00	943315.30	275434.00
	Jul-Sep	1341602.00	1038008.00	303595.00
	Oct-Dec	1461739.00	1126236.00	335503.00
2006	Jan-Mar	1565840.00	1197740.00	368100.00
	Apr-Jun	1644634.00	1245768.00	398866.00
	Jul-Sep	1705044.00	1277602.00	427443.00
	Oct-Dec	1758044.00	1304034.00	454010.00
2007	Jan-Mar	1814606.00	1335856.00	478750.00
	Apr-Jun	1882559.00	1380841.00	501718.00
	Jul-Sep	1957158.00	1434683.00	522475.00
	Oct-Dec	2030516.00	1490060.00	540456.00
2008	Jan-Mar	2094743.00	1539647.00	555096.00
	Apr-Jun	2143645.00	1577486.00	566159.00
	Jul-Sep	2177796.00	1603077.00	574719.00
	Oct-Dec	2199465.00	1617287.00	582178.00
2009	Jan-Mar	2210921.00	1620982.00	589939.00
	Apr-Jun	2214385.00	1615286.00	599099.00
	Jul-Sep	2211890.00	1602353.00	609537.00
	Oct-Dec	2205423.00	1584596.00	620826.00
2010	Jan-Mar	2196969.00	1564427.00	632542.00

Table A12: Interpolated Quarterly Govt. Expenditures using Spline Method

(Million Rupees)

Year	Quarter	Total Exp.	Development Exp.	Current Exp.
1979	Jan-Mar	4135.00	15158.00	49145.00
	Apr-Jun	5809.67	15102.50	52000.60
	Jul-Sep	7292.97	15035.80	54658.20
	Oct-Dec	8393.54	14946.70	56920.00
1980	Jan-Mar	8920.00	14824.00	58588.00
	Apr-Jun	8767.39	14674.00	59553.90
	Jul-Sep	8176.34	14573.20	60067.70
	Oct-Dec	7473.86	14615.50	60469.20
1981	Jan-Mar	6987.00	14895.00	61098.00
	Apr-Jun	6962.86	15475.80	62253.30
	Jul-Sep	7328.93	16303.10	64072.00
	Oct-Dec	7932.79	17292.10	66650.10
1982	Jan-Mar	8622.00	18358.00	70084.00
	Apr-Jun	9281.05	19411.20	74388.70
	Jul-Sep	9942.05	20342.10	79254.80
	Oct-Dec	10674.00	21035.90	84291.80
1983	Jan-Mar	11546.00	21378.00	89109.00
	Apr-Jun	12568.80	21314.10	93401.30
	Jul-Sep	13520.80	21030.70	97205.00
	Oct-Dec	14122.20	20774.70	100641.70
1984	Jan-Mar	14093.00	20793.00	103833.00
	Apr-Jun	13306.80	21283.40	106951.50
	Jul-Sep	12250.80	22247.60	110373.00
1985	Oct-Dec	11565.40	23638.20	114524.30
	Jan-Mar	11891.00	25408.00	119832.00
	Apr-Jun	13585.40	27445.60	126483.70
	Jul-Sep	15875.10	29383.80	133710.20
	Oct-Dec	17703.70	30791.70	140502.80
1986	Jan-Mar	18015.00	31238.00	145853.00
	Apr-Jun	16185.60	30459.20	149176.30
	Jul-Sep	13323.90	28861.70	151583.50
	Oct-Dec	10971.20	27019.30	154609.50
1987	Jan-Mar	10669.00	25506.00	159789.00
	Apr-Jun	13404.80	24763.90	168124.80
	Jul-Sep	17951.00	24708.90	178491.40
	Oct-Dec	22526.50	25125.20	189231.30
1988	Jan-Mar	25350.00	25797.00	198687.00
	Apr-Jun	25176.60	26555.60	205578.20
	Jul-Sep	22907.20	27421.30	210134.10
	Oct-Dec	19979.20	28461.30	212961.20
1989	Jan-Mar	17830.00	29743.00	214666.00
	Apr-Jun	17491.70	31313.50	215855.40
	Jul-Sep	18376.10	33139.10	217138.00
	Oct-Dec	19489.70	35165.90	219122.80
1990	Jan-Mar	19839.00	37340.00	222419.00
	Apr-Jun	18852.50	39665.30	227623.70
	Jul-Sep	17646.30	42377.30	235286.50
	Oct-Dec	17758.50	45769.10	245945.30

Table A12: Interpolated Quarterly Govt. Expenditures using Spline Method (Continued)

(Million Rupees)

Year	Quarter	Total Exp.	Development Exp.	Current Exp.
1991	Jan-Mar	20727.00	50134.00	260138.00
	Apr-Jun	27356.70	55549.70	277834.00
	Jul-Sep	35519.70	61231.70	296729.20
	Oct-Dec	42355.20	66180.10	313951.40
1992	Jan-Mar	45002.00	69395.00	326628.00
	Apr-Jun	41558.70	70240.80	332828.00
	Jul-Sep	33961.70	69540.30	334385.60
	Oct-Dec	25106.80	68480.60	334076.10
1993	Jan-Mar	17890.00	68249.00	334675.00
	Apr-Jun	14531.20	69671.50	338374.20
	Jul-Sep	14546.60	72129.50	345031.90
	Oct-Dec	16776.80	74643.60	353922.60
1994	Jan-Mar	20062.00	76234.00	364321.00
	Apr-Jun	23440.10	76219.40	375740.40
	Jul-Sep	26738.30	75111.40	388649.20
	Oct-Dec	29981.10	73719.70	403754.40
1995	Jan-Mar	33193.00	72854.00	421763.00
	Apr-Jun	36426.80	73094.90	442911.80
	Jul-Sep	39847.80	74106.00	465556.40
	Oct-Dec	43649.40	75321.60	487582.40
1996	Jan-Mar	48025.00	76176.00	506875.00
	Apr-Jun	52920.80	76281.80	521873.00
	Jul-Sep	57293.80	75963.90	533228.60
	Oct-Dec	59853.70	75725.60	542147.10
1997	Jan-Mar	59310.00	76070.00	549834.00
	Apr-Jun	54980.10	77396.90	557495.20
	Jul-Sep	48611.50	79692.80	566338.30
	Oct-Dec	42559.40	82840.50	577571.60
1998	Jan-Mar	39179.00	86723.00	592403.00
	Apr-Jun	40197.90	91073.60	611636.60
	Jul-Sep	44833.30	95025.90	634460.00
	Oct-Dec	51674.80	97564.10	659656.30
1999	Jan-Mar	59312.00	97672.00	686009.00
	Apr-Jun	66178.30	94708.50	711719.90
	Jul-Sep	70081.30	89531.70	732665.40
	Oct-Dec	68672.40	83374.90	744140.10
2000	Jan-Mar	59603.00	77471.00	741439.00
	Apr-Jun	42572.90	72795.00	723189.40
	Jul-Sep	25475.80	69289.50	701349.10
	Oct-Dec	18253.70	66638.70	691208.20

Table A12: Interpolated Quarterly Govt. Expenditures using Spline Method (Continued)

(Million Rupees)

Year	Quarter	Total Exp.	Development Exp.	Current Exp.
2001	Jan-Mar	30849.00	64527.00	708057.00
	Apr-Jun	68746.70	62734.40	760898.00
	Jul-Sep	119605.00	61423.60	833582.40
	Oct-Dec	166623.00	60852.70	903673.60
2002	Jan-Mar	193002.00	61280.00	948735.00
	Apr-Jun	187080.00	62791.10	953068.10
	Jul-Sep	157742.00	64781.40	927925.90
	Oct-Dec	119010.00	66473.80	891299.90
2003	Jan-Mar	84907.00	67091.00	861181.00
	Apr-Jun	66169.60	66123.40	851387.30
	Jul-Sep	60393.30	64131.10	859043.60
	Oct-Dec	61888.10	61942.10	877101.60
2004	Jan-Mar	64964.00	60384.00	898513.00
	Apr-Jun	65078.90	60127.10	918171.30
	Jul-Sep	62281.90	61211.30	938737.40
	Oct-Dec	57769.60	63519.10	964814.70
2005	Jan-Mar	52739.00	66933.00	1001006.00
	Apr-Jun	48186.10	71278.00	1049686.00
	Jul-Sep	44303.70	76149.10	1104317.00
	Oct-Dec	41084.00	81084.20	1156132.00
2006	Jan-Mar	38519.00	85621.00	1196364.00
	Apr-Jun	36558.40	89420.00	1220909.00
	Jul-Sep	34982.10	92633.30	1244308.00
	Oct-Dec	33527.40	95535.60	1285765.00
2007	Jan-Mar	31932.00	98402.00	1364482.00
	Apr-Jun	30250.70	101428.00	1491611.00
	Jul-Sep	29808.70	104490.00	1646094.00
	Oct-Dec	32248.50	107387.00	1798824.00
2008	Jan-Mar	39213.00	109915.00	1920691.00
	Apr-Jun	51594.70	111950.00	1991713.00
	Jul-Sep	67285.80	113672.00	2028415.00
	Oct-Dec	83428.90	115340.00	2056445.00
2009	Jan-Mar	97166.00	117210.00	2101456.00
	Apr-Jun	106335.00	119479.00	2183046.00
	Jul-Sep	111557.00	122094.00	2296608.00
	Oct-Dec	114146.00	124939.00	2431485.00
2010	Jan-Mar	115420.00	127899.00	2577020.00

Figure 1-A:

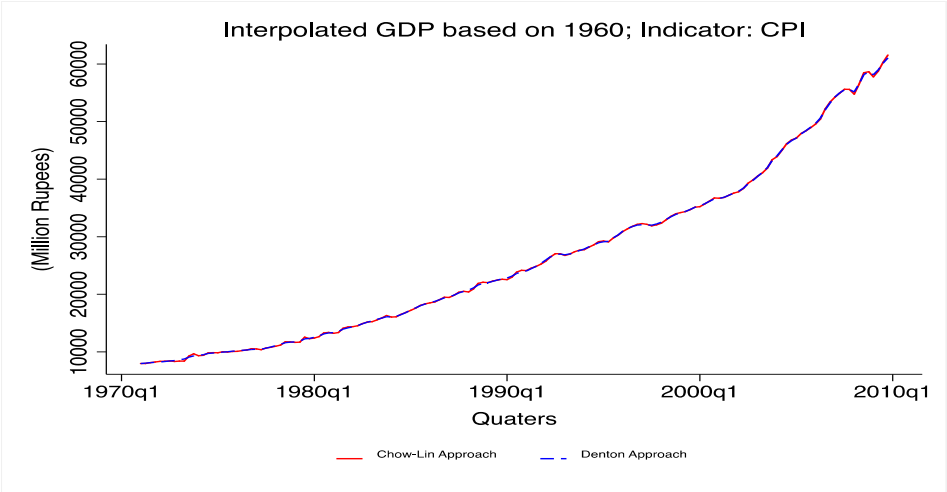


Figure 1-B:

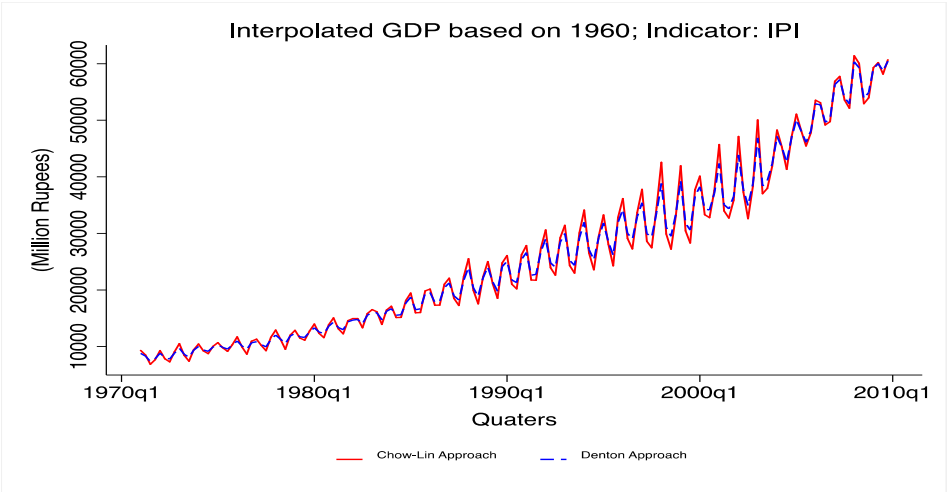


Figure 1-C:

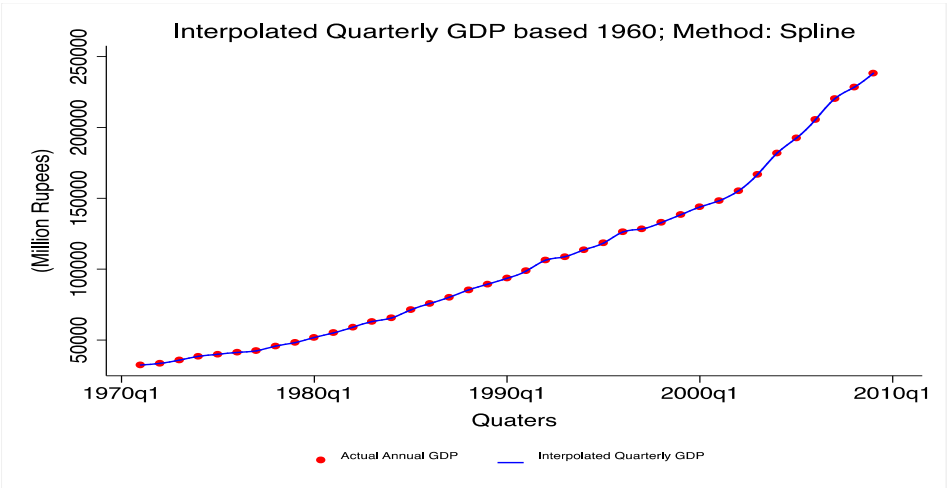


Figure 2-A:

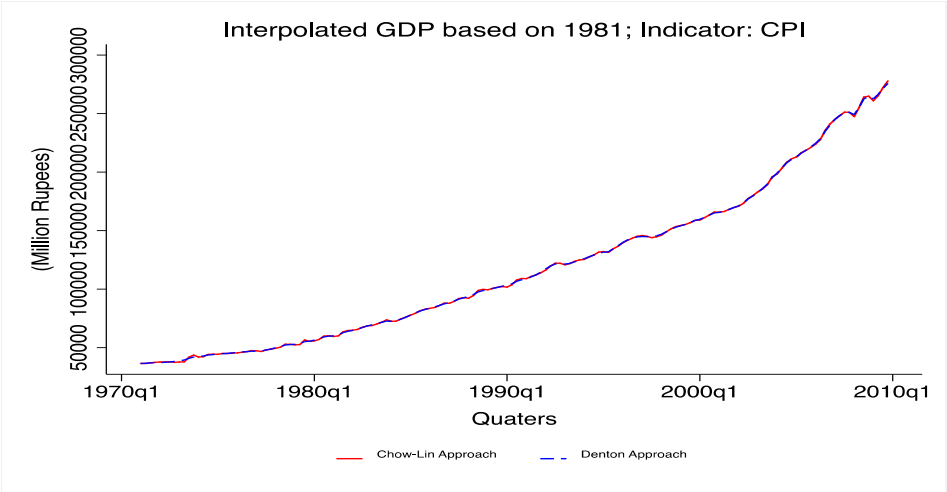


Figure 2-B:

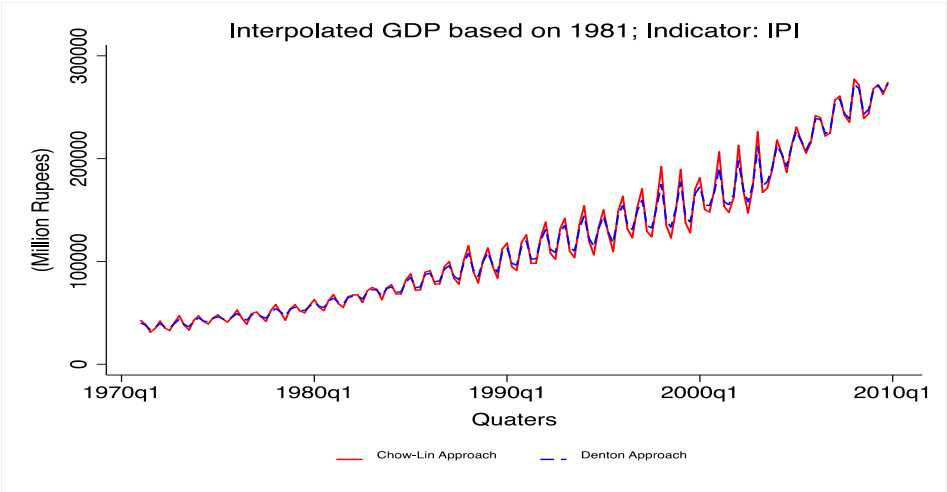


Figure 2-C:

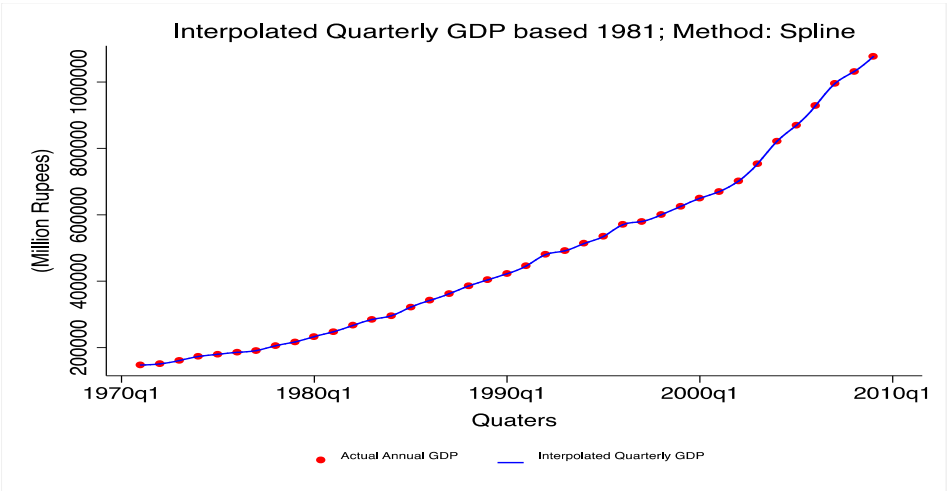


Figure 3-A:

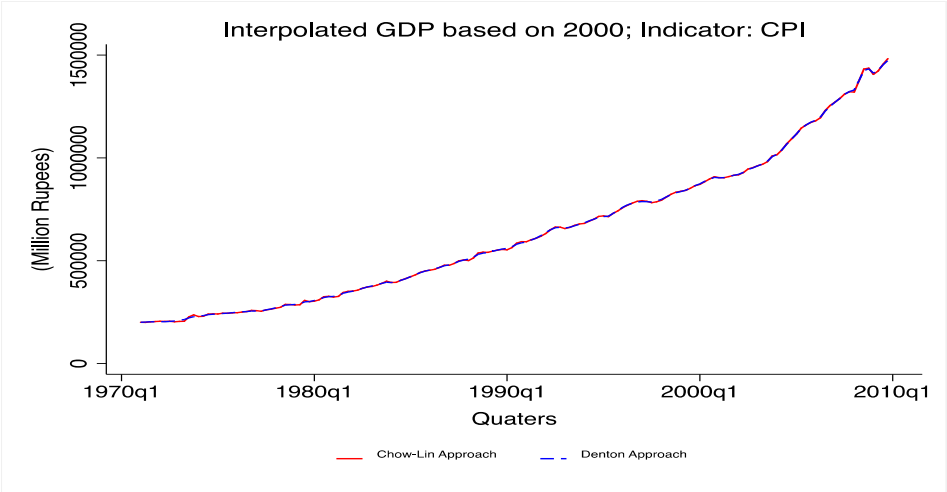


Figure 3-B:

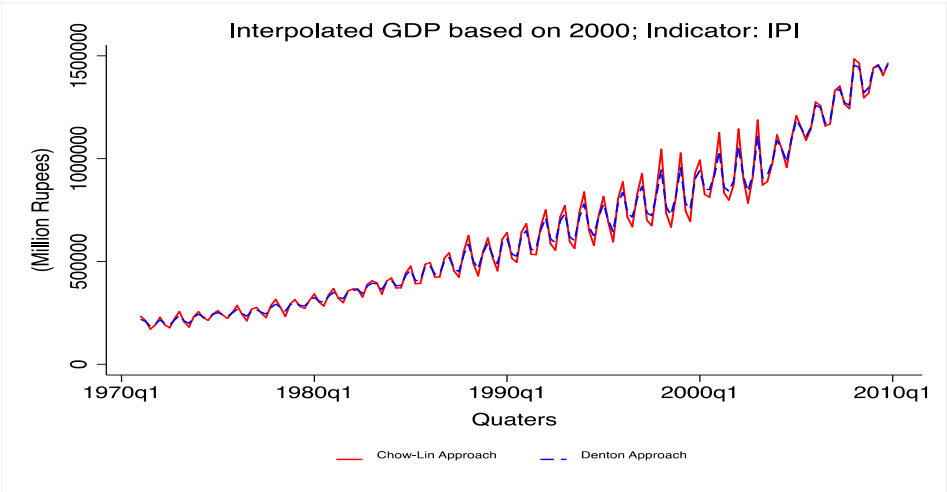


Figure 3-C:

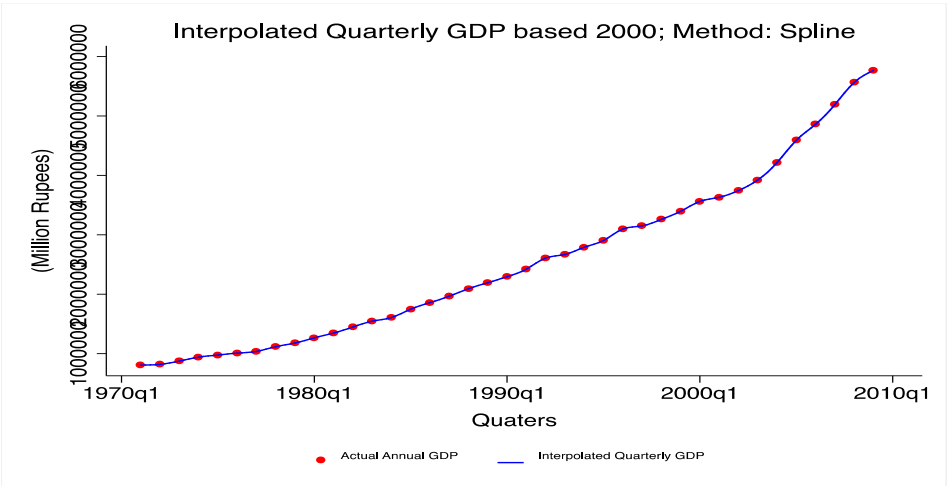


Figure 4-A:

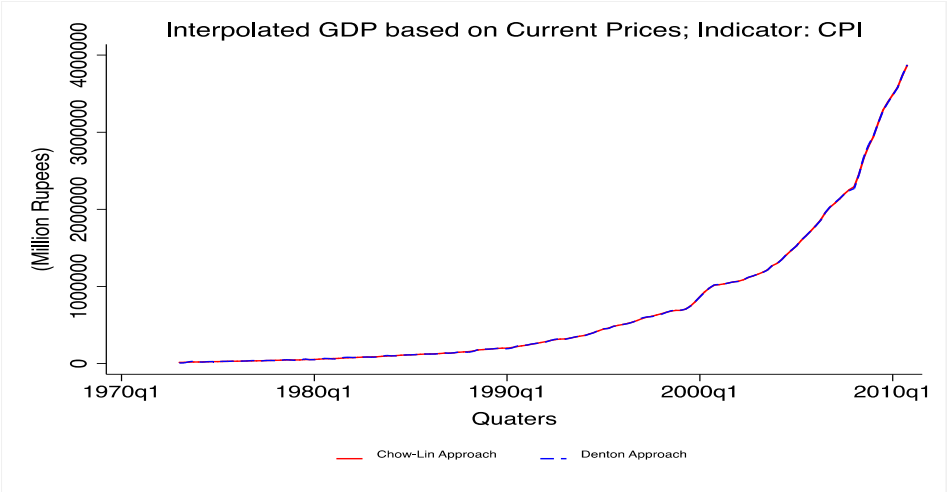


Figure 4-A:

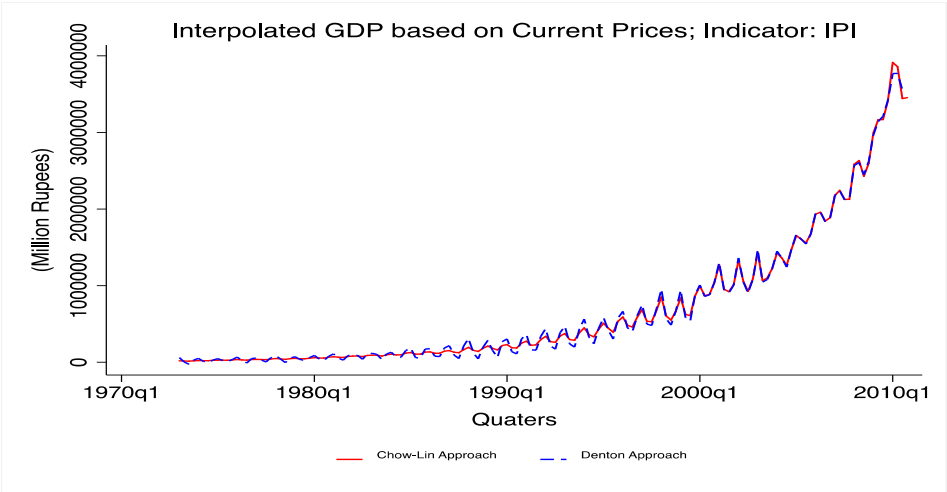


Figure 4-C:

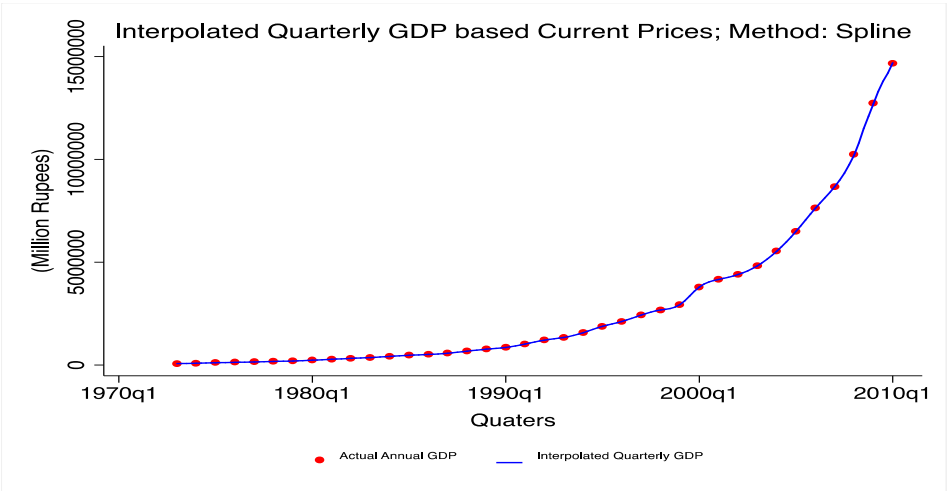


Figure 5-A:

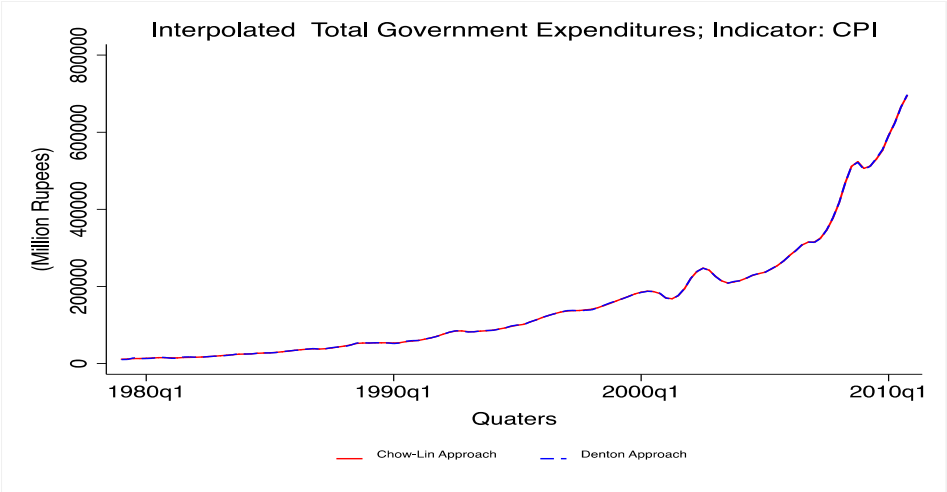


Figure 5-B:

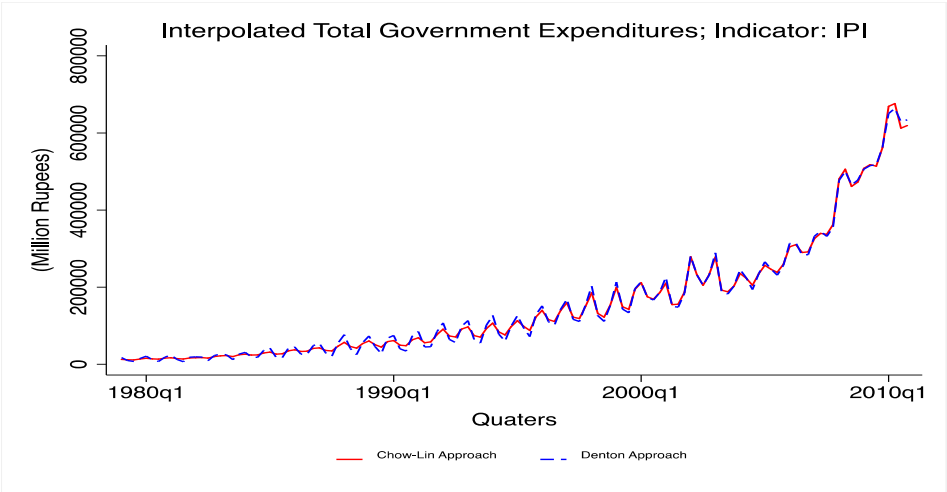


Figure 5-C:

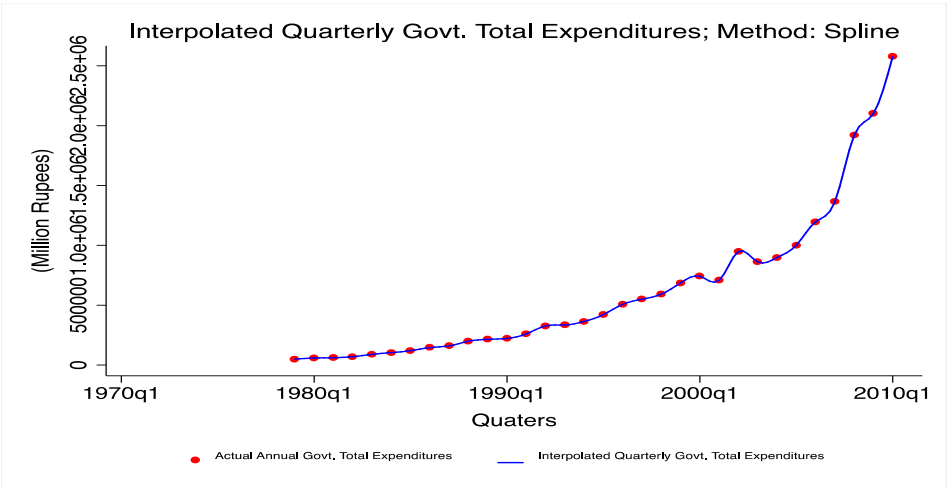


Figure 6-A:

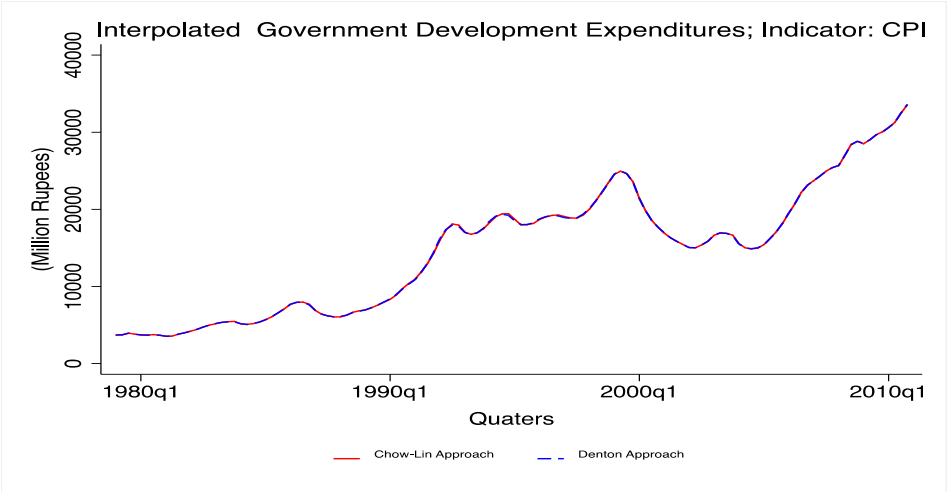


Figure 6-B:

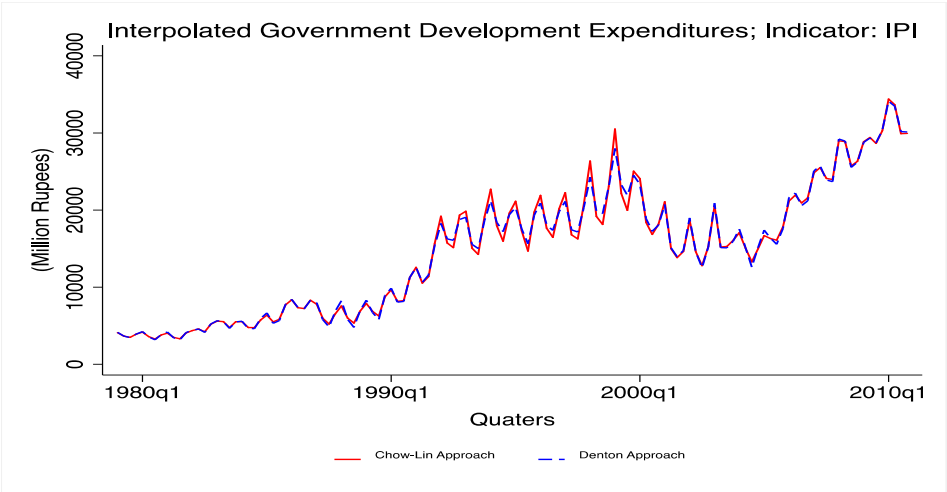


Figure 6-C:

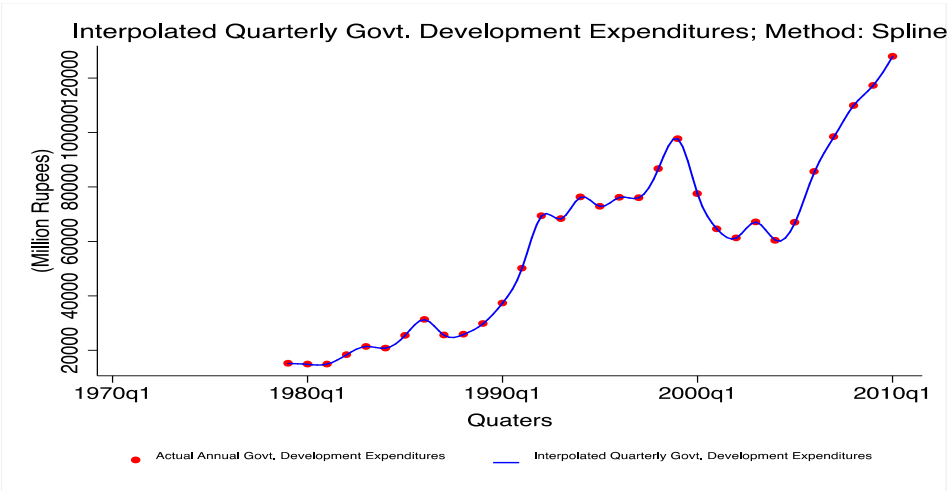


Figure 7-A:

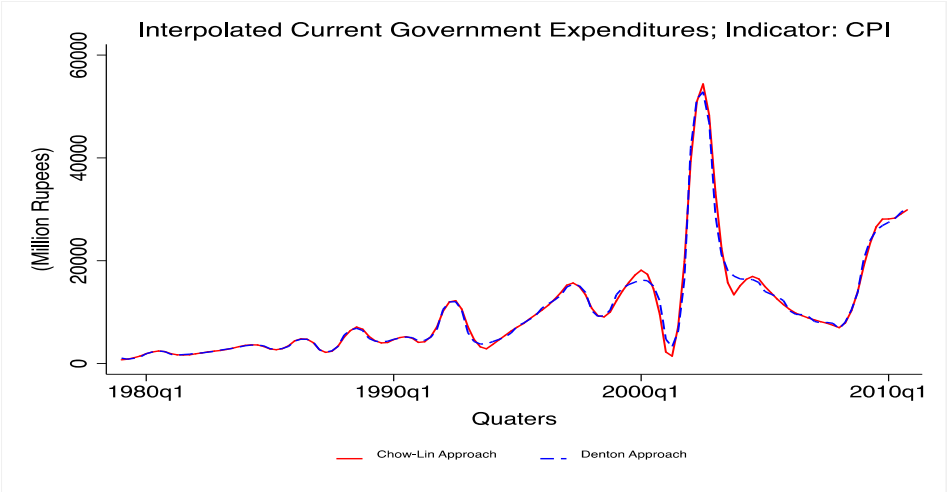
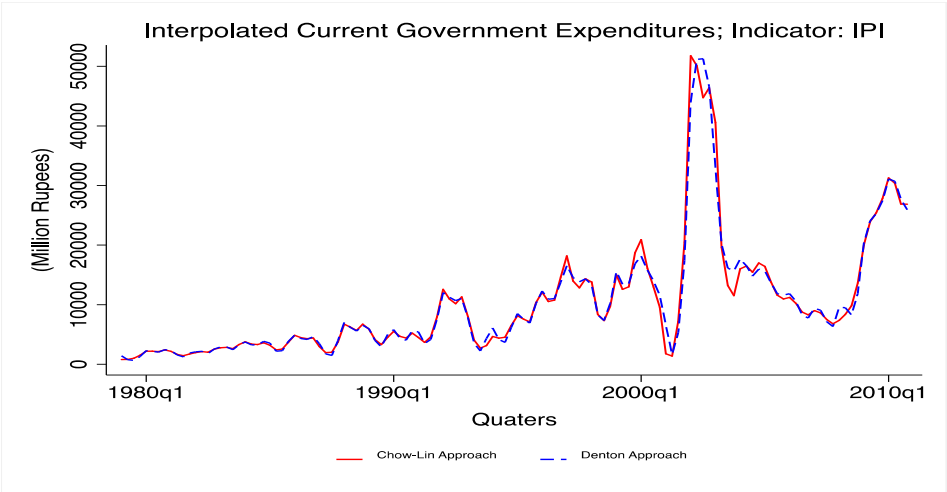


Figure 7-B:



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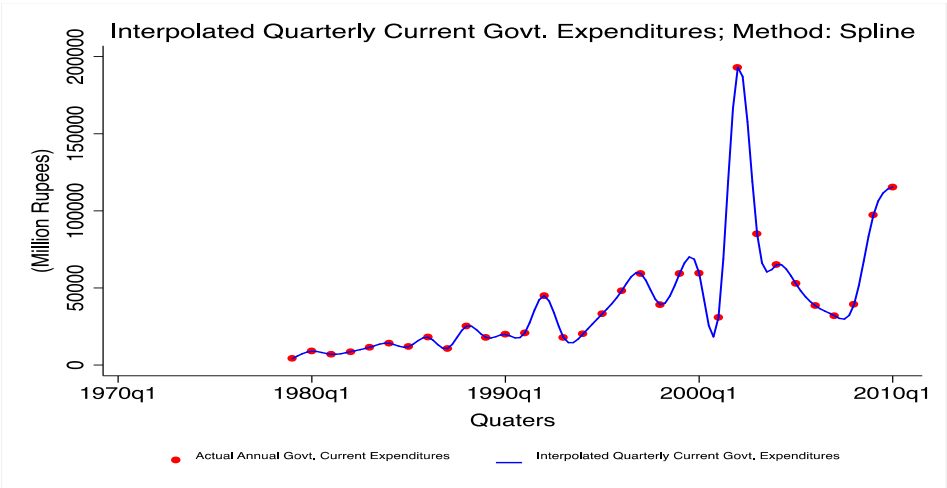

Figure 8-A:

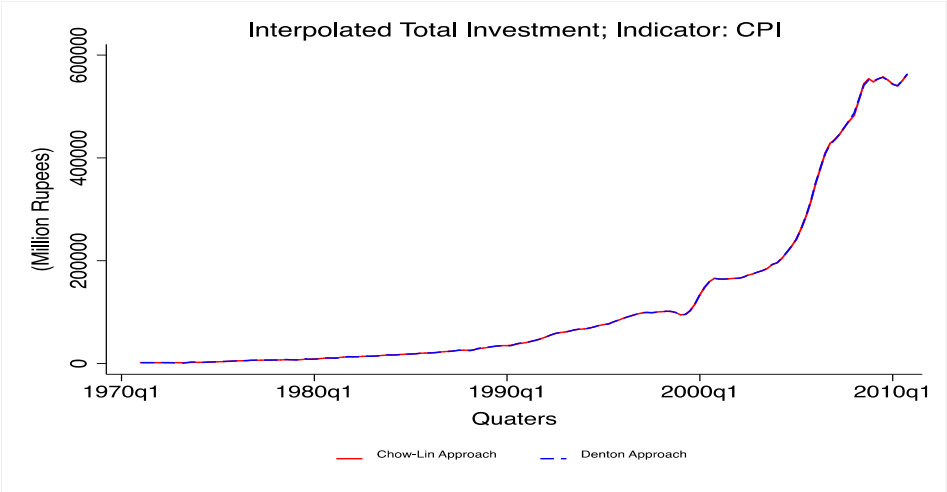

Figure 8-B:

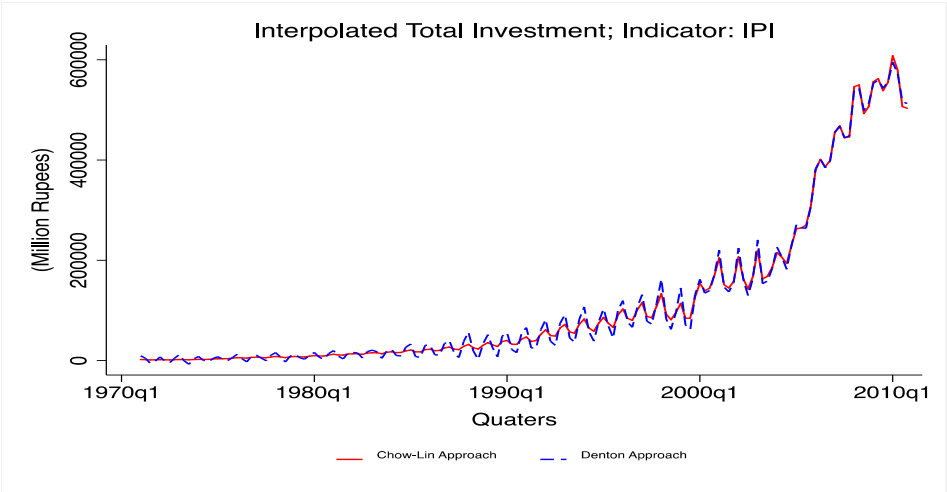

Figure 8-C:

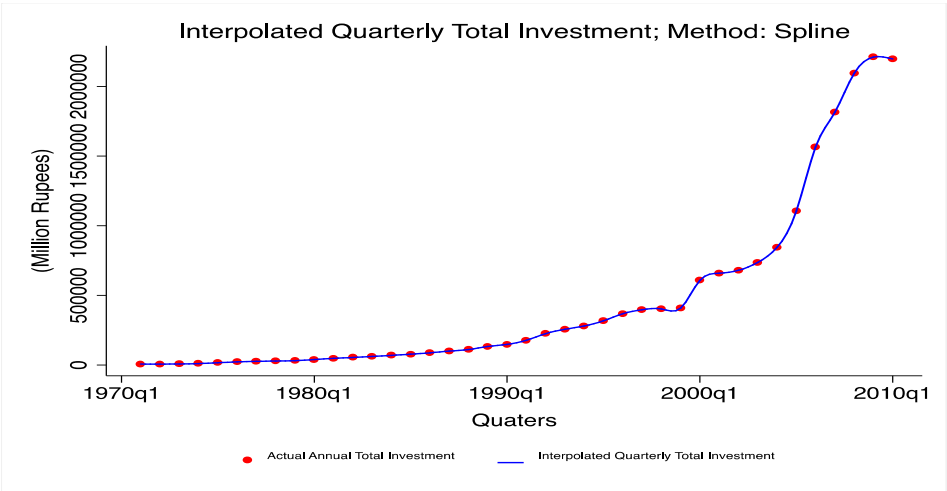

Figure 9-A:

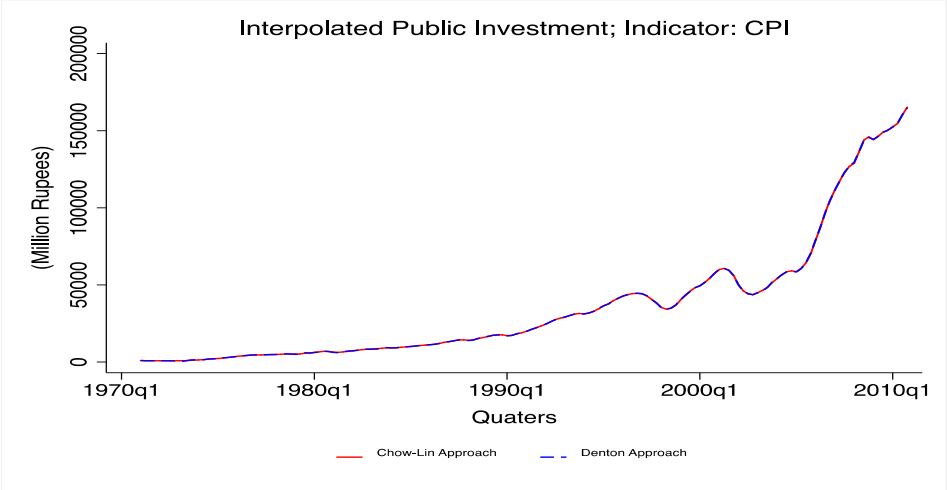

Figure 9-B:

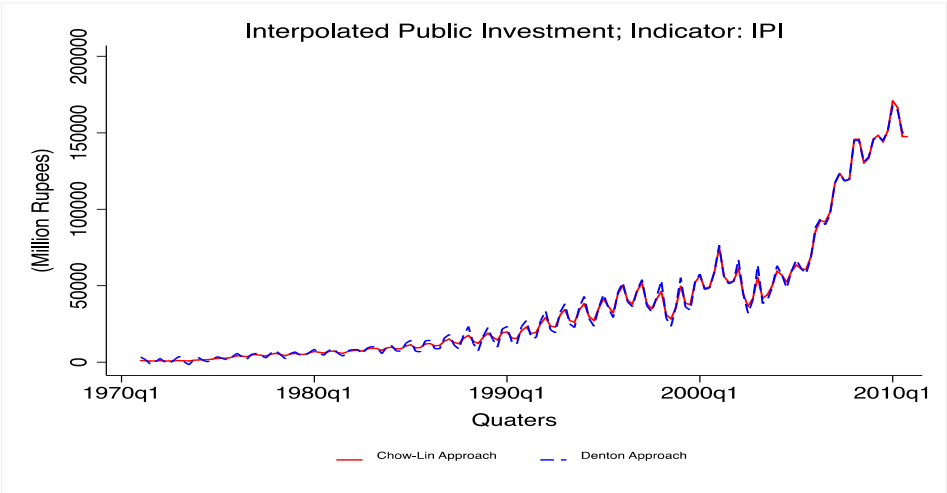

Figure 9-C:

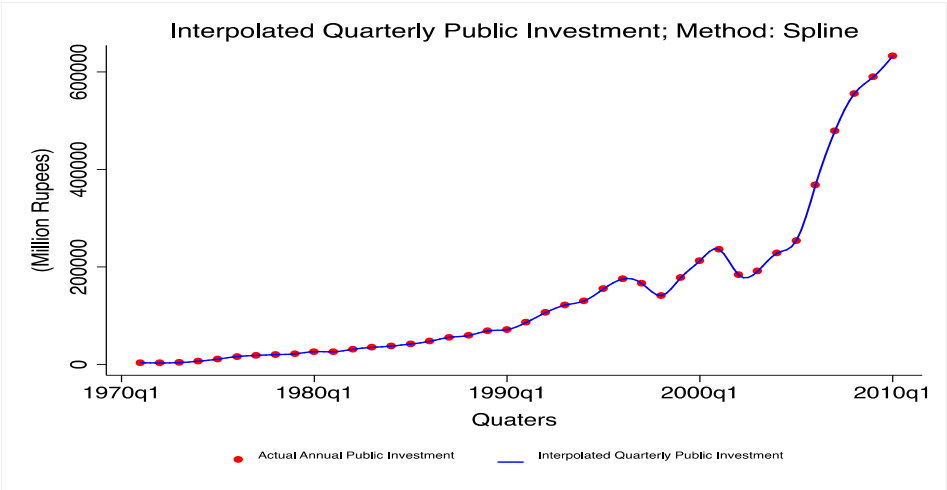

Figure 10-A:

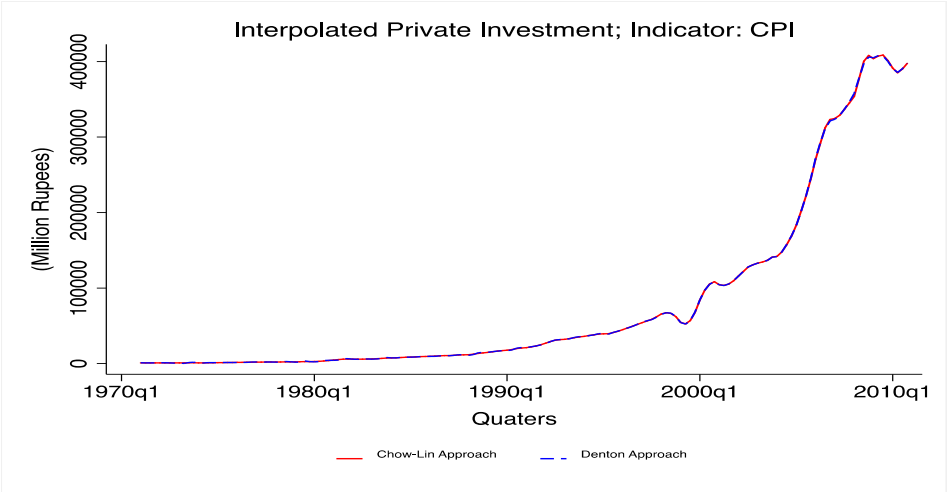

Figure 10-B:

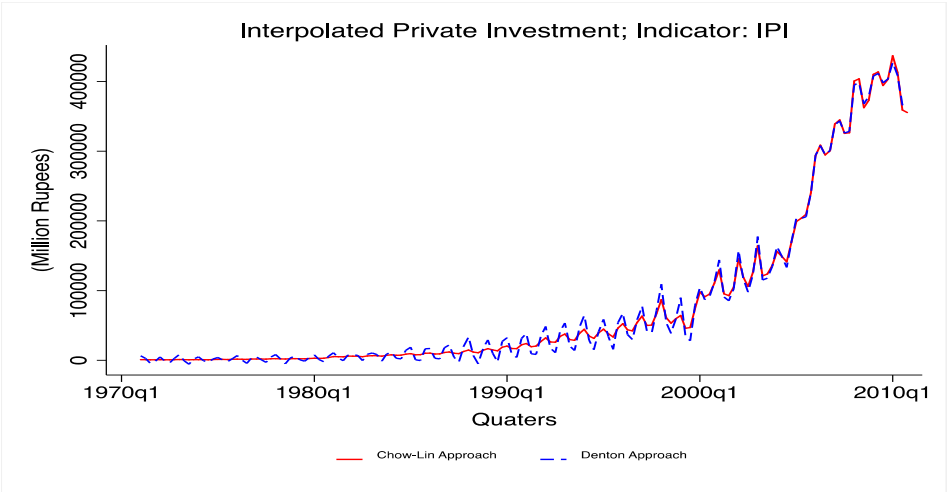

Figure 10-C: